November 2007

The Identification of Factors Influencing the Diffusion of an Assessment Innovation on a University Campus

Ann Louise McCann
University of Nebraska at Lincoln, amccann@bcd.tamhsc.edu

THE IDENTIFICATION OF FACTORS INFLUENCING THE DIFFUSION OF AN ASSESSMENT INNOVATION ON A UNIVERSITY CAMPUS

by

Ann L. McCann

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctoral of Philosophy

Major: Educational Studies

(Educational Leadership in Higher Education)

Under the Supervision of Professor Larry L. Dlugosh

Lincoln, Nebraska

October, 2007

DISSERTATION TITLE

The Identification of Factors Influencing the Diffusion of an

Assessment Innovation on a University Campus

BY

Ann L. McCann

SUPERVISORY COMMITTEE:

Approved	Date
Signature	10/09/07
Dr. Larry L. Dlugosh Typed Name	
Signature	10/09/2007
Dr. Alan Seagren Typed Name	
Signature	10/09/2007
Dr. Jody Isernhagen Typed Name	
Signature	10/09/07
Dr. Ronald Joekel Typed Name	
Signature	10-9-07
Dr. Sharon Evans Typed Name	
Signature	
Typed Name	

University of Nebraska Lincoln

The Identification of Factors Influencing the Diffusion of an Assessment Innovation on a University Campus

Ann Louise McCann, Ph.D.
University of Nebraska, 2007

Advisor: Larry L. Dlugosh

This study explored the extent of and reasons for the adoption of an innovation (REAL) on a university campus (MSU). REAL was an assessment system to improve teaching, student learning and accountability. A mixed methods approach was used, with an electronic survey of faculty (n = 568) and telephone interviews with adopters (n = 9). Using a stratified random sample from all eight colleges, the survey measured perceptions of REAL related to: relative advantage, trialability, result demonstrability, visibility, compatibility, complexity, image and voluntariness. The interview questions also explored the strategies of senior administrative support, collaborative leadership, flexible vision, staff development, and visible actions.

The survey yielded a 41% response rate. All eight scales were reliable with alpha levels > 0.839. All eight scales emerged distinctly in a factor analysis, demonstrating construct validity. Results indicated that REAL was not well known to the faculty. Sixty percent reported hearing of REAL, and only 35% had ever viewed REAL reports. The most common response for how often they had used REAL was “never” (63%). The majority (85%) indicated that REAL had not helped their department improve teaching or learning. The respondents also reported REAL was lacking in the attributes that support adoption, generally disagreeing with the survey items. They did “somewhat agree” (mean

= 4.98) that they were *not* required to use REAL. Perceptions of REAL improved with exposure. Frequent users were more likely to agree with four of the scales (correlations, $p < .001$). Logistic regression demonstrated that voluntariness was the only scale that consistently predicted REAL use ($p \leq .001$). Also, serving on an assessment committee and shown how to use REAL together predicted using REAL ($p < .001$).

In the interviews, adopters revealed real and potential benefits of REAL. They also revealed REAL was somewhat difficult to use, not compatible with campus culture and not viewed as a means for improvement. Although REAL benefited the campus, it did not possess attributes favorable to adoption. Guidelines were developed for improving adoption of assessment systems.

Acknowledgements

To my husband, Dr. Emet Schneiderman

He encouraged me from the beginning, suffered through those five years of my not being available and read the dissertation from cover to cover.

To my daughter, Hannah Schneiderman (17 years old)

She thought that it was pretty cool that I was going to be a Dr. I believe I inspired her to do the same one day.

To my parents, Irvine and Wilda McCann (80 something)

My Mom thinks that anything I do is great, and Dad can't wait to go to my graduation**.**

To my mentors

Dr. Larry Dlugosh

He was always available for my phone calls, emails and gave advice as needed. From the start, he made the whole long process seem possible.

Dr. Ron Joekel

He always provided constructive yet gentle advice in my courses. Even though it was distance education, he knew who I was.

Dr. Sharon Evans

She taught an awesome survey course. I thought I knew it all!

Dr. Al Seagren

He was the senior wise man who also kept track of me and my progress.

Dr. Jody Isernhagen

Her knowledge of assessment and experience with large-scale initiatives inspired me.

A Vignette: The Assessment Dilemma

Assessment and accountability are here to stay on university campuses……

"The University of Michigan announced today that it had received an anonymous $50-million gift that comes with some hefty string attached to it. The pledge is for the new Cardiovascular Center, which opened on June 11.

The donor plans to give the $25-million over the next 10 years, beginning this month, and the university will receive the remaining $25-million upon meeting goals agreed upon by the donor and the center's leaders, according to a university new release.

The institution and the donor have created benchmarks that will allow the benefactor to review the center's performance before releasing the final $25-million. Some categories that will be measured for results include performance on clinical measures, to ensure that the university is providing effective care, and scores on patient-satisfaction surveys.

Other areas that will be monitored by the donor include the amount of research grants won, the number of research publications and patents, and the quality of teaching. The donor has also asked the center be led by a team, not an individual, so that specialists are encouraged to work together" (Strout, 2007).

And yet faculty say……..

What about REAL?

I am an assistant professor,
chasing tenure,
keeping up with coursework,
participating in university service,
And I have a family.
It's hard to take on new initiatives unless forced to,
and then only begrudgingly.
REAL is one of dozens of initiatives
swirling around in a storm of issues.
REAL seems profoundly relevant to those promoting it,
but they should look closely at the working experience of faculty
before making assumptions about how it will be adopted.

-Anonymous MSU professor

Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

Background and Purpose

Purpose of Study

The purpose of this study was to explore how one university campus implemented an innovation, an online assessment system to measure the quality and extent of student learning during the higher education experience. This innovation included a database for program assessment plans, an annual reporting of results and a peer review process for the assessment plans and reports. The foci of this exploration were measuring the extent of assessment system adoption by campus faculty members, identifying their reasons for adoption and evaluating its impact on teaching and learning. Adoption of the innovation was analyzed in terms of the following innovation attributes: greater *relative advantage* over a former practice, *compatibility* with the needs and values of the adopters, *trialability* prior to its adoption, *complexity or* ease of use (Rogers, 2003), the degree to which it enhances *image* and how *voluntary* adoption is perceived to be (Moore & Benbasat, 1991). Adoption was also analyzed in terms of the change strategies used by the campus, specifically *senior administrative support, collaborative leadership, flexible vision, staff development* and *visible actions*, as well as the influence of institutional culture (Eckel & Kezar, 2003).

The Problem

Higher education has been held accountable for the assessment of student learning since the late 1980s. Accrediting agencies have required assessment, and the public has demanded evidence of student learning, both parents and legislators. Higher education

institutions develop and implement student assessment systems prior to accreditation site visits, but these have a tendency to be discontinued afterwards, as a function of time, turnover in administrators and faculty resistance to assessment practices. So, although collecting evidence of student learning is needed, the practice does not seem to "stick" in higher education practice. Looking deeply at how one university has introduced an assessment innovation may help explain this paradox.

Middle States University (MSU) implemented a new assessment system in October 2002, prior to a 2004 accreditation site visit by its regional accrediting agency, the Higher Learning Commission (HLC). This system was developed by the faculty members (n = 10) on the Academic Assessment Committee (AAC) and spearheaded by the newly appointed Director of Assessment. The campus assessment system was entitled Researching Learning (REAL). The research focus of this title was used to indicate that assessment was a scholarly activity, an important distinction in higher education. The student affairs division of the University also used REAL with their own assessment committee, the Student Affairs Assessment Committee (SAAC). Some of the SAAC initiatives were related to student learning, such as leadership development.

To use REAL, an academic program developed an assessment plan with goals and indicated how each of those goals would be assessed. There had to be at least two student learning goals, as well as one faculty research/scholarship goal and one faculty service/outreach goal. This information was entered into the online campus database. The AAC reviewed assessment plans and classified them as under-developed, well developed or best practices, providing suggestions for improvement. Examples of "best practices"

were made available to all in REAL. At the end of the fiscal year, each program reported the results of assessment in terms of their goals and described how the outcome information would be used for improvement. Appendix A provides an example of a REAL assessment plan that identifies best practices. This evidence of meeting program goals, particularly student learning, and continuous improvement was used by the University for Regional Accreditation reporting and by the programs for professional accreditation and program review (six year cycle).

REAL was available to all campus faculty members, although various levels of security required the use of passwords. Faculty members could view their own program assessment activities as well as those of all other programs within their college. Many programs added actual assessment instruments to the database, such as rubrics for student projects and student surveys. There were many potential uses for REAL including:

- Planning and tracking student learning within individual programs or across programs.
- Collecting evidence of learning for accountability purposes, such as faculty promotion and tenure dossiers, program review, accreditation and state performance requirements.
- Developing classroom assessment research and other learning-based research projects, both within and across programs.
- Defining good teaching practices.
- Facilitating organizational learning through assessment of student learning.

- Facilitating peer review internally and externally by documenting teaching practices and student learning.

This assessment innovation has been in place for five years. Although all the undergraduate programs were mandated to engage in this assessment process, compliance among the programs was not consistent. This was an appropriate time to study how effectively REAL had diffused on the MSU campus and how this diffusion could have been improved.

Research Questions

1. How did one campus, MSU, implement the assessment innovation REAL?
2. What was the extent of REAL adoption on the MSU campus?
3. What were the reasons for REAL adoption or lack thereof on the MSU campus?
    a. Did the diffusion attributes of Rogers (2003) and Moore and Benbasat (1991) predict adoption of REAL?
    b. Did Eckel and Kezar's (2003) change strategies explain adoption of REAL?
    c. Were there other factors associated with the adoption of REAL?
4. What was the impact of REAL on MSU campus practices, particularly teaching and student learning?

Data Collection Methods

This study involved a case study of one campus (MSU) using a mixed methods research approach. Research methods included an online survey of faculty and a

telephone interview with a select group of faculty and administrators who had proven experience with REAL. The REAL database was also a source of information about the users of the system and the quality of the information they entered.

Definitions

Assessment of Learning—Gathering evidence of student learning and using the information to give feedback to the students and improve teaching-learning in the classroom and in extra-curricular activities (Angelo, 1995; Banta 2005a). If evidence is collected from all university programs, the level of institutional learning can be assessed.

Assessment System—A process to measure learning across a campus and a vehicle or database for storing and sharing the information.

Change—Change is the "observation of difference over time in one or more dimensions of an entity" (Van de Ven & Poole, 1995; as cited in Kezar, 2001, p. iii). First order change involves minor adjustments or improvements in an organization while second order change is transformational. The underlying values or mission, culture, processes or structure are altered.

Collaborative Leadership—Collaborative efforts among leaders, formal (titled) and informal (untitled), to direct the implementation of REAL (Eckel & Kezar, 2003).

Communication—The process by which individuals create and share information to reach a mutual understanding (Rogers, 2003).

Compatibility—The degree to which REAL was viewed as congruent with existing values, past experiences and needs of MSU faculty members (Rogers, 2003).

Complexity—The degree to which REAL was viewed as difficult to understand and use (Rogers, 2003).

Culture—"A pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 2004, p. 17).

Diffusion—"The process by which an innovation is communicated through certain channels, over time among members of a social system" (Rogers, 2003, p. 110). The innovation is adopted or rejected, resulting in social change.

Ease of Use—The degree to which REAL was viewed as easy to learn and use (Moore & Benbasat, 1995).

Flexible Vision—A clear and desirable picture of the future with using REAL that did not preclude other opportunities that might arise (Eckel & Kezar, 2003).

Image—The degree to which using REAL was perceived to enhance one's status in MSU's social system" (Moore & Benbasat, 1991, p. 195).

Innovation—An idea, practice or object that is viewed as new to an individual or other unit of adoption (Rogers, 2003). In this study, REAL is the innovation.

Observability—The degree to which the results of REAL were visible to potential adopters (Rogers, 2003). Moore and Benbasat (1991) divided observability into two attributes, result demonstrability and visibility.

Relative Advantage—The degree to which REAL was viewed as better than the idea or practice it superseded (Rogers, 2003).

Re-invention—The degree to which an innovation is changed or modified by a user in the process of adoption (Rogers, 2003).

Result Demonstrability—The degree to which the results of using REAL were observable and communicable to other faculty at MSU (Moore & Benbasat, 1995).

Senior Administrative Support—Actions that top leaders took in implementing REAL, including providing resources, guiding the process and creating new administrative structures to support these efforts (Eckel & Kezar, 2003)

Staff Development—Education efforts for individuals to learn new skills or gain new knowledge about REAL (Eckel & Kezar, 2003).

Student learning—Learning includes gain in knowledge, skills, and attitudes, including leadership skills. This learning can take place both within the classroom and through extracurricular campus activities.

Trialability—The degree to which REAL could be experimented with or tried on a limited basis (Rogers, 2003).

Visibility—The degree to which REAL was apparent by sight (Moore & Benbasat, 1995).

Visible Actions—Evidence that REAL was making progress (Eckel & Kezar, 2003)

Voluntariness—The degree to which using REAL was perceived as being voluntary or of free will (Moore & Benbasat, 1991).

Assumptions

1. Students gained new knowledge and skills in their higher education experience that could be measured.
2. Assessment was a means of measuring and improving learning.
3. MSU faculty members should be using REAL.
4. The perceptions of the survey respondents about the attributes of REAL could be identified by a survey and interviews.
5. The extent of REAL diffusion and its impact could be measured by the survey, the interviews and documentation in the REAL database.

Delimitation

This study only reported the diffusion of an assessment system on one campus. The results of the study do not reflect the diffusion processes at other campuses. Assessment systems and the diffusion process could be somewhat different for every campus.

Limitations

1. Although the survey response rate was not particularly low, the results of the study may not represent the opinions and practices of the campus user population.
2. Interviews were limited in number and again the opinions expressed by the participants might not represent the opinions of the campus user population.

Significance of the Study

Assessment is here to stay. Accreditation agencies, legislators, and the public demand it, and the demand is growing. Despite these conditions, assessment is not being routinely integrated into daily practice in higher education and is not being used to make evidence-based decisions about teaching and learning. If the adoption of assessment on a university campus could be explained by Roger's (2003) theory, Eckel and Kezar's (2003) theory or a combination of the two, this could suggest how the introduction of assessment systems on campuses could be modified to improve acceptance and practice.

Chapter 2

Review of the Literature

In this review, there are three main sections and a summary as illustrated in Visual Map of the Literature Review (Figure 1). This visual picture of the literature chapter displays the topics in both hierarchical and chronological order from left to right, as recommended by Creswell (2003). The first section about assessment defines assessment of learning, describes the history of the assessment movement, explains how to assess student learning, describes strategies that have been used to introduce assessment on campuses and finally provides reasons for the limited success of assessment initiatives on campuses.

The second section is about innovation and two theories that attempt to explain why and how innovations are successfully adopted into organizations. The first theory of Rogers (2003) is primarily concerned with the attributes of the innovation and the second theory of Eckel and Kezar (2003) focuses on the types of strategies that are used to effect changes on college campuses. Research is also presented to support each of these two theories.

The third section demonstrates how the two theories relate to the assessment literature and how REAL as an assessment system could be viewed as an innovation. Finally, the summary indicates that the two theories about innovation and change were appropriate frameworks for studying the adoption of an assessment system at MSU.

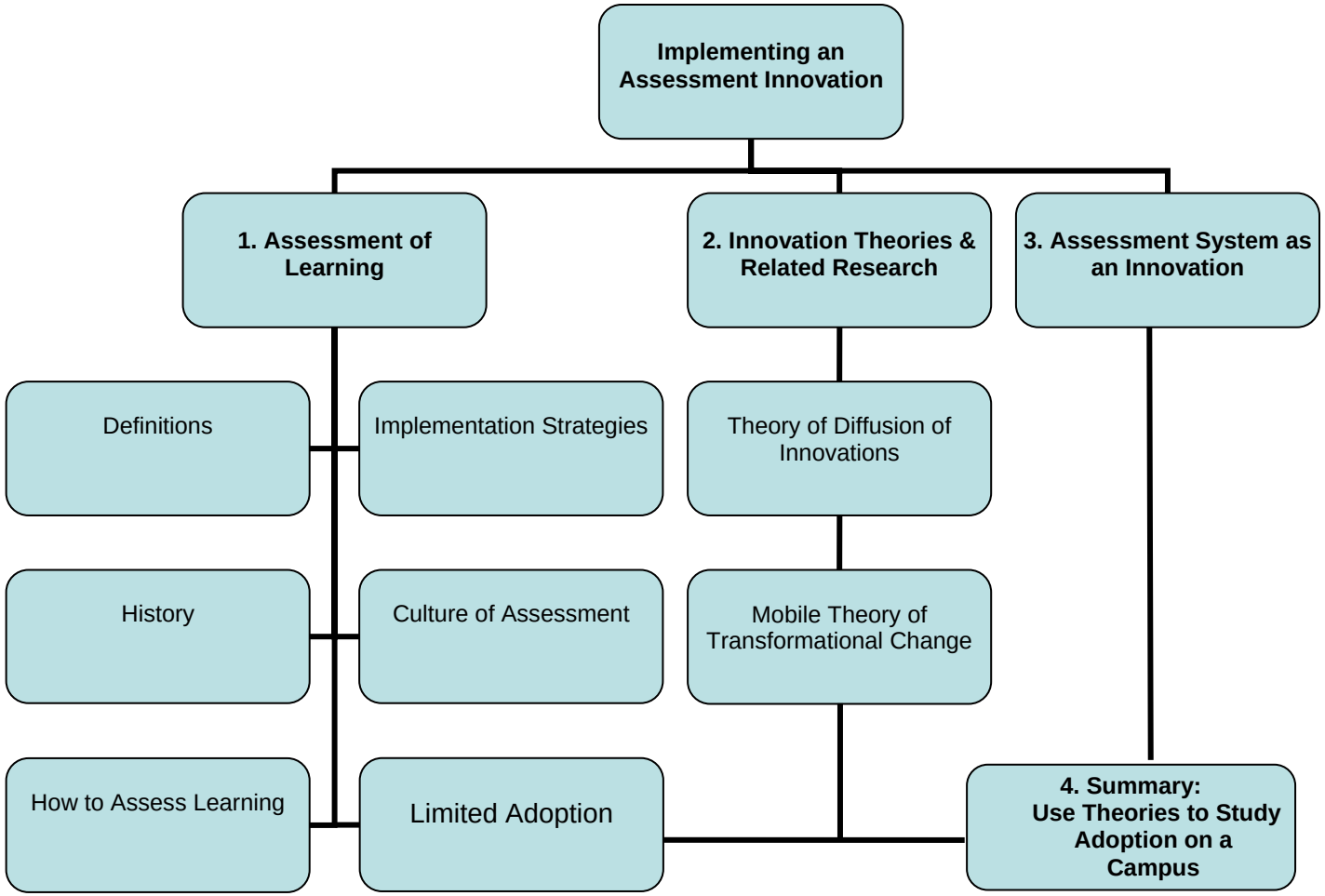

Figure 1. Visual map of the literature review.

Assessment of Learning

Defining Assessment of Learning

Assessment of learning is the process of deciding what students need to learn, gathering evidence of that learning, and then using the evidence to give feedback to the students, as well as using the information to improve the teaching-learning process. Angelo (1995) expands on this definition. Assessment is:

> an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. (p. 7)

Regarding the purposes of assessment, Banta (2005a) stated it was:

to give students feedback; to focus faculty and staff on the best ways to improve curriculum, instruction and student services; to provide tangible evidence of meeting strategic goals; and to demonstrate to stakeholders that students can solve society's problems and that institutions have integrity. Angelo (1995) claimed when assessment "is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education" (p. 7).

The consistent theme in these definitions, as well as others (Kuh, Kinzie, Schuh, & Whitt, 2005a), is assessment is for improvement, primarily student learning but also teaching, curricula, college services and the reputation of the institution. This model of improvement through assessment of student learning is illustrated in Figure 2 (Engelkemeyer & Moses, 2002). Evidence of the need for improvement is gathered from

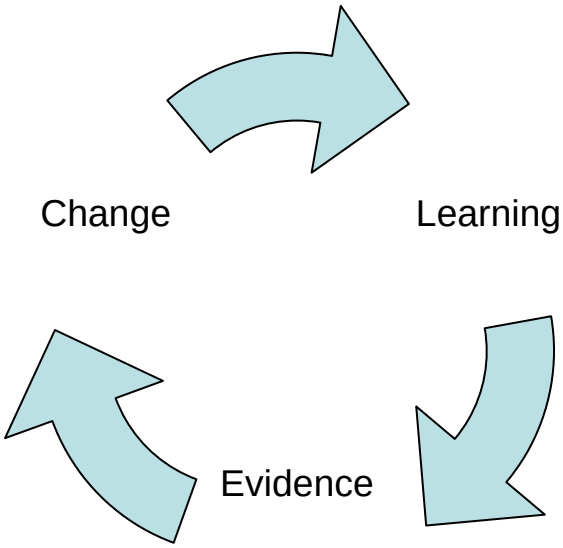

Figure 2. Assessment of learning for change (Engelkemeyer & Moses, 2002).

outcomes assessment and is then used to change/improve student and institutional learning.

Hutchings and Marchese (1990) summarized the questions that institutions and the public seek to answer with assessment of student learning.

> Have our graduates in specialized fields- accountancy or history or biology- learned what we expect at the level we expect? Are our graduates in professional fields- like business or architecture- ready to be effective practitioners? Do our carefully constructed curricula in fact meet their objectives for student learning? More generally, and beyond the major field, do recipients of our university's degree know and can they do what the degree implies? Can they, for instance, communicate, use evidence, think critically, solve problems and work with others?

These questions reflect a change in the definition of quality in higher education. The traditional approach was to regard quality as a function of inputs, i.e., the biggest endowment, largest library, brightest students—and the most difficult curriculum. Now the emphasis has shifted to outcomes, the most important being student learning. Thus,

the current criterion for the highest quality institution is one that contributes the most to student learning, particularly the one that moves them the farthest from their performance at admissions, which is the value-added approach (Hutchings & Marchese, 1990) .

History of Assessment Movement

The above discussion about the questions answered by assessment alludes to a change in how quality is judged in higher education. The assessment movement really started in the 1980s in response to three pressures, one internal to the academy and two external. The internal pressure was the desire to reform the undergraduate curriculum and move away from the unstructured, choice-based curricula of the 1960s (Ewell, 1991; Hutchings & Marchese, 1990). Four major reports in the 1980s, particularly *Involvement in Learning* (Astin et al., 1984), linked assessment with undergraduate reform. This report stressed that not only could individual student learning be enhanced by frequent communication about performance but also institutional learning; institutions could make continuous improvements in response to this information. These reports also suggested that higher educational institutions were not being held accountable for their educational product (Ewell, 1991).

Externally, due to rising costs, legislators and governors were becoming aware that they did not know how one-quarter to one-third of their higher education budgets were being spent. As within the academy, major policy reports were generated, such as *Time for Results* (McDonald, Ewell, & Jones, 1986), which advocated using assessment for reform. These reports called for information on student performance to be publicly available and comparable across campuses, used to inform policy and resource allocation

at the state level and used to inform potential students and parents about college choices. Some states moved to "performance based funding" where institutions either received rewards for demonstrating effectiveness (such as Tennessee) or received funds to solve specific problems with assessment. The majority of states required each institution to submit and receive approval for a local assessment plan consistent with institutional mission (Ewell, 1991).

The other external driver was the need for a better educated workforce. Our information society, with expanding service sectors and high-technology industries, needs workers with good reading and math skills and the ability to handle complex tasks. Political leaders championed this cause, and higher education was pressured to raise the minimum skill levels of college graduates. Again, this demand created the need to provide evidence of learning through assessment (Rossmann & El-Khawas, 1987).

In the 1990s, the assessment movement continued. From 1983 to 1996, the Center for Policy Analysis of the American Council of Education conducted a national survey of US colleges and universities to identify campus trends. In 1996, 88% of the institutions reported that they had greater accountability for student outcomes. Forty-nine percent also reported greater attention to teaching and learning as their most significant program change. The report indicated that this was a major shift for campuses and predicted a different era of campus priorities that focused on teaching effectiveness, including rewarding good teaching with teaching awards, offering programs to improve teaching and changing the criteria for tenure to reflect good teaching (El-Khawas & Knopp, 1996).

Many campuses experimented with a shift from teaching-centered to learning-centered environments. Instead of focusing on what professors teach, they were trying to focus on what students learn. Barr and Tagg (1995) labeled the former environment the "instruction paradigm" and the latter the "learning paradigm." The focus of the instruction paradigm is one-teacher, one-classroom, and a three-credit-hour-course with 50 minute lectures. The purpose is to deliver instruction, knowledge comes in "bits" delivered by the instructor, faculty and students work in isolation and any expert can teach. In the learning paradigm, the purpose is to produce learning through powerful learning environments, knowledge is constructed by the student, faculty and students work in teams, and empowering learning is challenging and complex (i.e., teaching requires training).

Currently, the internal and external pressures for outcomes assessment continue. Higher education is still being asked to report student learning to the public. Four major policy reports on accountability and assessment were issued in 2004-2005 from the Business Higher Education Forum, the National Center for Public Policy in Higher Education, the Association of American Colleges and Universities and the State Higher Education Executive Officers. There are three persistent themes in all of these reports. One, accountability is about the results of student learning. Two, accountability is cast in the public interest, with the measures requested being about comparative institutional condition and performances, e.g., costs per credit hour, student-faculty ratios, instructional versus administrative costs, graduation and placement rates. Additionally, statistics on the benefits that higher education brings to society are often advocated, such

as advanced literacy skills, levels of workplace preparedness, voting and charitable giving. Three, accountability processes are increasingly "transparent," such as making accreditation results public (Ewell, 2005).

Accountability for student learning outcomes is reflected in the reports issued from the Commission on the Future of Higher Education. Appointed in January 2002 by President Bush, this Commission had 19 members representing higher education, business, and the standardized testing world. Margaret Spellings, the Secretary of Education, charged them with "developing a comprehensive national strategy for postsecondary education that will meet the needs of America's diverse population and also address the economic and workforce needs of the country's future" (p. 1), as well as deciding how the US government can get the most out of its national investment in education. According to Commission members, higher education should have to prove that it is doing a good job with what it already has, before it receives additional money (Lederman, 2006a).

An underlying theme was that standardized testing might be used as a blueprint for higher education, a core value from the No Child Left Behind (NCLB) Act for K-12. Under NCLB, students must be tested every year in grades 3-8 and at least once in high school. Schools must show that students are making progress each year. If scores do not improve, schools face penalties such as firing administrators or takeover by the state (U.S. Department of Education, 2006a). Spellings reported that standardized test scores were rising for K-12 students largely due to the NCLB's high standards and accountability measures (U.S. Department of Education, 2005).

Another underlying theme in the discussions of the Future Commission was the inadequacy of the current accreditation process. Members argued that it was not robust enough to improve the quality of higher education, because the bar was set too low (Lederman, 2006a). In a recent report, the Commission recommended (a) a national accreditation framework that emphasized outcomes, especially student learning, and standards that encourage innovation and continuous improvement; (b) national standards for how institutions define and assess student learning outcomes; and (c) greater transparency with more public reporting of student performance data (Schray, 2006). Regarding the latter, Charles Miller, the Chairman of the Commission, continually stressed that transparency in the operations of colleges and universities and in the publication of more and better data about their performance would have a healing effect on the ills of higher education (Lederman, 2006b).

Regarding the accreditation, Shapiro stated, "Accreditation based on learning outcomes is becoming the norm, which has been a tremendous lever for reform" (2006, p. 43). In fact, all six US regional accrediting agencies for higher education institutions currently require the assessment of student learning in the context of ongoing improvement, although the language varies. The Middle States Commission (MSCHE) calls it "quality assurance" (Middle States Commission on Higher Education, 2006), the Higher Learning Commission (HLC) of the North Central Association "quality improvement" (Higher Learning Commission, 2003), the Southern Association of Colleges and Schools (Southern Association of Colleges and Schools, 2001) "quality enhancement" and the Western Association (WASC) "evidence-based evaluations of

educational effectiveness" (Western Association of Schools and Colleges, 2001). A WASC standard specifically states the faculty must "take responsibility for evaluating the effectiveness of the teaching and learning process and use the results for improvement" (p. 30). In addition to the traditional compliance audit, SACS requires a Quality Enhancement Plan on a well-defined issue directly related to improving student learning, with assessment strategies being an important component.

Another assessment focus of these accreditation standards is creating and sustaining an organization that is continuously improving. The Western Association talks about "creating an organization committed to learning and improvement" (p. 29). The Middle States Commission standards describe assessing the assessment process, a somewhat hard concept to grasp. However, the intent is to periodically determine if the assessment process is yielding learning evidence leading to program improvement or if the assessment process needs to be altered.

How to Assess Student Learning

The American Association of Higher Education developed a set of nine principles for assessing student learning:

1. The assessment of student learning begins with educational values.
2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.
3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.
4. Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.
5. Assessment works best when it is ongoing not episodic.
6. Assessment fosters wider improvement when representatives from across the educational community are involved.
7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.

8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.
9. Through assessment, educators meet responsibilities to students and to the public. (Astin et al., 1992, pp. 2-3)

Banta (2006) offered criteria for an effective assessment program at a higher education institution. These were derived from the American Association of Higher Education and the assessment practices recommended by the American Productivity and Quality Center (Brown, Keeton, & McMorrow, 1998).

1. Involves stakeholders (faculty, administrators, and students) from the outset, in order to incorporate their needs and interests and to solicit later support.
2. Begins when the need is recognized and allows sufficient time for development. Timing is crucial.
3. Has a written plan with clear purposes that are related to goals people value.
4. Approaches are based on clear, explicitly stated program objectives.
5. Practice has knowledgeable, effective leadership.
6. Recognizes that assessment is essential to learning and therefore is everyone's responsibility.
7. Includes development activities for faculty and staff, to prepare them to implement assessment and use the findings.
8. Responsibility for effective assessment is devolved to the unit level.
9. Recognizes that learning is multidimensional and developmental and thus uses multiple measures, therefore maximizing reliability and validity.
10. Incorporates continual communication with constituents concerning assessment activities and findings.
11. Produces data that guides improvement on a continuing basis.
12. Produces credible evidence of learning.
13. Ensures that assessment data are used to continually improve programs and services.
14. Provides a vehicle for demonstrating accountability to stakeholders within and outside the institution.
15. Incorporates ongoing evaluation and improvement of the assessment process itself. (Banta, 2006, pp. 3, 15-16)

To conduct assessment of learning, higher education started with available standardized instruments, such as the ACT Assessment and the Graduate Record Examination (GRE). Because these were not designed to assess the knowledge and skills

gained from a college experience, new standardized tests needed to be developed. Some tests developed for general skills were the ACT COMP, the ETS Academic Profile and the ACT CAAP. The latter was a 40 minute multiple choice test on writing, mathematics, reading, critical thinking and science reasoning. However, the difficulty of defining general skills that applied across all disciplines and ascertaining whether these skills could be connected to actual practice, led assessment leaders to question the efficacy of standardized testing (Ewell, 1991). Another problem with standardized testing was that students were not motivated to perform as well, when their performance was not linked to grading in a particular course (Gibralter & Cepriano, 2006).

Due to these problems, the assessment movement has more recently turned to a naturalistic approach focused on the individual classroom. Curriculum-embedded assessment, happening within the context of the classroom, is the favored approach, such as comprehensive examinations, senior projects or capstone experiences, and portfolios. Faculty and students are less likely to view assessment as an add-on activity in this context, strengthening support for these activities. Walvoord and Anderson (1998) advocated for the development of grading rubrics for these assignments, called primary trait assessment, that bring focus to the specific skills that students need to learn. These rubrics also enhanced the validity and reliability of the assessment process. Existing college surveys such as alumni surveys can also be modified to capture assessment of student learning (Ewell, 1991).

Several authors advocated the need for an institutional database for monitoring student learning. Astin (1991) claimed that the lack of an adequate comprehensive

student database is the biggest obstacle to enhancing the development of student talent. Miller, the chairmen of the Commission on the Future of Higher Education, quite succinctly summarized the value of an assessment institutional database for student learning. “I’ll say it again: when you don’t have the right kind of data put into some kind of accountability system, nothing gets done. It’s like the sound in the forest that no one hears. When you measure things and publicize it, that creates change” (Lederman, 2006b p. 4).

An institutional database for assessment would allow a college or university to become a “learning organization.” Senge (1990) defined this as “an organization that is continually expanding its capacity to create its future” (p. 14). The data on student learning would allow the institution to practice systems thinking, a concept that Senge calls the fifth and more important discipline. This would allow the institution to look at student learning as a whole and how all the contexts for learning interact with each other instead of in isolation, which would be incomplete perspective. Discussion around this database would also help university personnel uncover the “mental models” that they have about teaching and learning practices. They may very well be in conflict with the implementation of assessment, such as the idea that assessment never results in improvement or change. The database would also facilitate two other disciplines of a learning organization, developing a “shared vision” for learning at the campus and “team learning” which is deeper than individual learning.

Barr and Tagg (1995) envisioned a learning organization where assessment “data are routinely talked about and acted upon by a community ever dedicated to improving its

own performance" (p. 20). They advocated for an institution-wide information system that enables the measurement of learning along many dimensions and in many stages of each student's college experience. The university would identify the knowledge and skills it expected its graduates to have and then determine how to assess them. The assessment program would measure "value added" learning, learning that was result of the college experience. To accomplish this, assessment of students would occur at the time of admission, at various other developmental stages and at graduation. The assessments would go beyond course grades, which do not provide reliable measures of learning, and involve the measurement of knowledge and skills by external sources, i.e., other than classroom teachers. Benchmarks of best practice against which institutional performance could be measured would be used as goals for improvement. The assessment information gathered would then be used to redesign and improve the learning environment. This information system would also provide public information on student learning.

Bender and Siller (2006) reported the shared responsibilities of a centralized assessment system on a university campus. The administration does not get involved in departments defining their academic quality, of setting their performance levels and assessment plans. However, departments must accept the administration's handling of their data, respond positively to university peer review, follow the time lines for reporting and use a common planning process. Conflict between the two can be reduced, because the administration focuses on process, not outcomes. They want to know "how well academic departments practice learning research, how much they learn and self-reflect

and how actively they are improving or enhancing quality" (p. 190), rather than how good were the results.

Prior to using an institutional assessment system called WeaveOnline, Virginia Commonwealth University had assessment documentation in file cabinets and individual computers throughout the campus. Compiling assessment results and identifying trends in preparation for regional accreditation was extremely difficult. WeaveOnline helped them accomplish the task, as well as make campus improvements, such as recognizing that students could not discern the quality of resources for doing research. Such a system also met the recommendation of the Commission on the Future of Higher Education to create a database for tracking student progress throughout college. Faculty and staff members were required to use WeaveOnline. However, according to the associate director of institutional assessment (Carnevale, 2007), probably less than one-half actually used it. He stated, "It's an assessment coordinator's dream and a faculty member's nightmare. . . . Faculty members do not like to be forced to do anything, especially when it involves administrators looking over their shoulders." The cost for the initial setup was $33,000 with $10,000 a year for maintenance. Other companies with institutional assessment database systems include Blackboard, Desire2Learn and Datatel, with Oracle, eCollege and SPSS planning to get involved. WeaveOnline claimed to already have 40 college clients.

Implementation Strategies for Assessment

Banta (2005b) interviewed 11 academic leaders to ask what kinds of incentives and support they provided to encourage faculty and staff involvement in assessment.

Most leaders believed that finding ways to improve student learning was a catalyst for positive change. They reported creating "a culture based on evidence, a culture that values and rewards the collection and use of data to guide changes aimed at enhancing the student experience in college" (p. 3). This resulted in faculty being intrinsically motivated to engage in assessment. Strategies included recognition for engaging, expecting faculty to do assessment as part of scholarship, declaring that assessment is part of teaching, tying it to annual performance, release time, summer salary, funding for travel, mini-grants and creating an office of assessment.

Sutton (2005) also focused on intrinsic motivation and presented her assessment implementation strategies within the framework of the theory of self-determination. According to this theory, getting people internally motivated requires meeting three basic needs—competence, autonomy and relatedness. For developing competence, she presented and distributed materials about student assessment that were as simple as possible. She also encouraged faculty to participate in the annual review of assessment reports. For autonomy, faculty were allowed to choose their own reporting style for assessment activities. She also avoided controlling language (must or should), provided meaningful rationales for assessment information requests and acknowledged negative feelings. To encourage relatedness, she tried to always be pleasant, to focus on improvements rather than weaknesses, and to make assessment activities enjoyable with humor and food.

Southeastern Oklahoma State University developed an assessment process which used a director of assessment and an assessment team of individuals who served as

specialists for their colleges. They received reassigned time, supplemental pay or both in this role. They met every other week and assisted their schools with assessment plans and reports. These specialists were able to meet with chairs, deans and faculty members and make assessment more accepted. They also had an Institutional Assessment Committee, a policy making group that reviewed the assessment reports. This process has continued beyond the accreditation visit. “Departments no longer ask whether they have to do assessment; they just do it” (Weiner & McMillan, 2005, p. 8).

Engelkemeyer and Landry (2001) offered change strategies for college campuses learned from five years with the Summer Academies of the American Association of Higher Education. At these Academies, campus teams worked on a change project of strategic importance at their campus. The change strategies recommended by the authors were communication, leadership, policy and procedures and resources. Communication of the change requires involving many stakeholders in collaboration across the campus. An example is having monthly dinners of stakeholders to keep them engaged. Second, identifying both formal leaders and informal leaders (no formal authority but much influence) was also an important strategy. This would involve identifying “agents of change” or early adopters and champions to facilitate the change. They recommended that leadership be more “evolutionary than revolutionary” (p. 8), keeping the initiative small at first to minimize upset and to buy time to demonstrate the benefits. Third, develop formal policies and procedures for the change. This would involve designing an overall implementation plan that would include compensation or incentives for early adopters and funding for assessment research. The authors also recommended campus

teams that: (a) have productive team members who are viewed as credible on campus and have negotiation skills, (b) include a skeptic, (c) have gender and discipline balance, and (d) include a student. The fourth strategy they recommended was acquiring and managing resources. This often requires extensive political work, explaining the rationale for the project, the time it will require and balancing turf issues.

Documenting Effective Educational Practices (DEEP) was a two year study of 20 four year colleges and universities that had higher than predicted graduation rates and scores on the National Survey of Student Engagement (NSSE). The research team visited each institution twice for several days. The team found that the most important characteristic of all the institutions was the intentional focus on improvement. According to the authors, these successful institutions displayed the following characteristics: positive restlessness (never quite satisfied), investing in student success and decision making informed by data. They were able to accomplish this by staying the course (for extended periods of time), providing leadership from every corner (administrators, senior and junior faculty, staff), putting someone in charge but keeping it collaborative, getting and keeping the right people, converting challenges into opportunities, cultivating a campus culture that makes space for differences and avoiding overload for people. In summary, these institutions set priorities, funded them, used data as the basis for making decisions and reported their performance. They created effective learning environments for a large number of students with practices that challenged and supported them. Institutional leaders championed and rewarded experimentation consistent with the school's mission and values (Kuh et al., 2005a).

A strategic planning effort at the University of New Hampshire provided ideas for planning and assessment activities. Their plan was prompted by a new president, a new vice president for finance and administration, a new provost, a need for financial restructuring and the need for a new academic plan. In fact, the new plan was called the Academic Plan so that all university planning and decision making would fall under the new academic vision. Three other decisions that were important included grounding the planning process in existing university governance structures, creating a culture of strategic decision making and making the planning a part of an alternate regional accrediting process. The authors (Leitzel, Corvey, & Hiley, 2004) offered the following recommendations for successful planning and change at higher education institutions.

- Everything is connected to everything else so think comprehensively rather than piecemeal. This is similar to Senge's (1990) "systems thinking."
- There is not one recipe. Start with harnessing the leadership and recognize that "change begets change because the institutional culture begins to change" (p. 43).
- Design a process that is clear and explicit but flexible and patient.
- Design a process that is inclusive, connects visibly with the governance structure and over-represents faculty and deans.
- Staff with competent respected individuals that have the time to dedicate.
- Prepare them for change "by consciously fostering an expectation that change can directly improve the lives of faculty and staff" (p. 43).
- Do not reinvent the wheel. Learn from others.

- Strengthen the sense of community by clarifying values and vision.
- Integrate academic and financial planning and use targeted fund raising to support change.
- Communicate as often as possible.
- Anticipate and mitigate barriers by building transitional safety nets under initiatives. Involve the right outside consultants to break political logjams or add expertise.
- "Give chance a chance" (p. 43). Take advantage of serendipity and good luck.

Culture of Assessment

Having a culture of assessment is often posed as a goal of the assessment movement. A definition of culture is needed before a culture of assessment can be described. Schein defines culture as

> a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (2004, p. 17)

Furthermore, he identifies levels of culture, as illustrated in Figure 3. The most superficial level of culture is artifacts, the visible structures and processes of an organization, such as published lists of values, ceremonies, how people dress, etc. Assessment examples would be a published set of assessment principles for a campus or a description of how a campus Assessment Committee functions. The next deeper level of culture is espoused values which are the strategies, goals and philosophies which people claim to act on in organizations. However, they generally do not explain much of the observed behavior or organizations. An Assessment Committee spending large

amounts of time on reviewing institutional assessment plans that do not reflect the real teaching and learning practices of a program is an example of espoused values. The innermost level, underlying assumptions, are the unconscious, taken for granted beliefs and thoughts of the organization. These are the real values of the organization and its people and the reasons for their actions. An underlying assumption could be that assessment is only for accountability reasons, a necessary evil so to speak, and programs only have to give lip service to it. So, they develop their assessment plans, but assessment does not affect how the department conducts business.

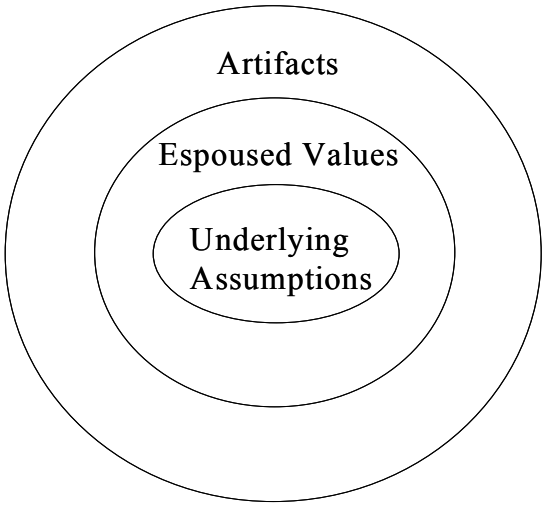

Figure 3. Schein's levels of culture (2004).

Schein (2004) claims you have to know the underlying assumptions of an organization as well as change those assumptions for a successful change effort. This claim is supported by Spuches, Gray, Raynal, and Shannon (2006) who implemented an assessment program for general education at the State University of New York (SUNY). They built their program on the underlying assumptions of the faculty culture, because

individual members had to believe in the assessment process and take ownership for the project to succeed. The authors incorporated the following implementation strategies that were congruent with the faculty culture: (a) gained faculty approval at the beginning of the project, (b) created a standing faculty governance committee on general education and its assessment, (c) used existing assessment approaches rather than create new ones due to the time constraints of faculty, (d) provided faculty development so they would be comfortable with the process, and (e) created a sense of project importance among the campus leadership that was conveyed to the faculty.

Astin (1991) described the characteristics of a hypothetical college or university with a culture of assessment.

- A widespread spirit of inquiry and self-study would prevail, and a comprehensive database would be the common tool for students, administrator, faculty and staff to engage in self examination.
- Teaching, advising and mentoring would have a higher priority to enhance learning and talent development.
- Experimentation and innovation would be more highly encouraged, with the database again being the tool for assessing the effectiveness of the innovations.
- Many more faculty members would be involved in research projects of teaching, learning and student development.
- Discussions about pedagogy would be commonplace.
- Rigid lines between departments and disciplines would begin to break down.

- Teacher training programs and schools of education would be prioritized more highly in the organization.
- Faculty and administrators would be hired based on their interest and ability to enhance talent development.
- Administrators would be expected to be educational leaders rather than managers.
- Students would be encouraged to seek careers in education.

If a culture of assessment as described by Astin (1991) prevailed at a higher education institution, it would function as a learning organization. Bok (2006) defined learning organizations as ones that "engage in an ongoing process of improvement by constantly evaluating their performance, identifying problems, trying various remedies, measuring their success, discarding those that do not work, and incorporating those that do" (p. 316). He claimed that universities should be leaders in such efforts, because they pioneered evaluation efforts for other institutions in our society. However, universities do not commonly function this way, using assessment evidence to measure the achievement of program goals, to improve teaching, to revise the curriculum or to solve campus problems. He stated "faculties seem inclined to use research and experimentation to understand and improve every institution, process, and human activity *except their own*" (p. 317). Bok challenged Presidents to encourage research on learning, to support innovation and to "create a culture of honest self-appraisal, continuing experimentation and constant improvement" (p. 341).

Limited Success of Assessment

Despite 20 some years of experience with assessment and the success stories of some institutions, a culture of assessment has not been adopted as widely or as deeply as anticipated. Barr and Tagg (1995) claimed that assessment reform has not worked, because it contradicts the instruction paradigm; student outcomes are irrelevant to the successful functioning and funding of colleges. They suggested that funding learning and learning related outcomes rather than hours of instruction would quickly create a shift to the learning paradigm at colleges and universities.

A mandate to do assessment can make university faculty members angry. Fendrich (2007), a professor of fine arts, explains her anger with such a mandate on her campus. She describes being initially positive about the mandate and a project she shepherded to improve art education. An alumni survey was used to assess feedback and led to creating a new space for a student-run art gallery and bringing in outside jurors to critique student work. She and her colleagues were pleased with their effort and believed they had improved the art program. However, they were criticized for not following the specific approach and jargon recommended by the University. She expressed her anger about having to use this standardized approach, especially grading rubrics (apparently not appropriate for art) and having to fit information into the table columns favored by assessment experts. She claimed that outcomes assessment was the "revenge of the mediocre" (p. 4).

Sutton (2005) used the theory of self-determination to explain the resentment and anger that an assessment mandate creates on a campus as well as how to promote the

value and ownership of assessment. She explained motivation as a continuum from external motivation to internal motivation, with "somewhat external" and "somewhat internal" in between. With external motivation, individuals comply with doing assessment only to avoid punishment or to get rewards. They comply because they must and are often angry, alienated and resentful. With "somewhat external" motivation, the individuals comply to avoid shame or guilt. Again, these individuals may be angry and are more likely to worry about poor assessment performance. When "somewhat internal," motivation to do assessment is based on seeing it as an important job responsibility. Internally motivated individuals believe that assessment of student learning is congruent with their personal beliefs; these individuals find assessment enjoyable and perform it much better than those with more external motivation.

Angelo (1999) provided reasons for assessment's lack of progress on college campuses. For one, doing assessment has little or no impact on pay, tenure, retention and promotion decisions. So, a faculty member needs to be internally motivated to engage in assessment. He also claimed that higher education does not have a common vision for what assessment should accomplish, which is learning. Instead, we do assessment as if the assessment process or winning matters the most, such as higher funding or accreditation. He further stated that the academy culture does not have the right mental model for assessment, valuing self-examination, reflection and continuous improvement. Rather, it views assessment as a technical process or a necessary bother for program evaluation and accreditation. Finally, he claimed the academy does not have research-based guidelines for practicing assessment that results in effective learning.

In another venue, Angelo (2004) presented seven common reasons that faculty give for not engaging in assessment. These reasons exemplify behavior that is externally motivated rather than internal.

1. We're doing just fine without it.
2. We're already doing it.
3. We're far too busy to do it.
4. The most important things can't/shouldn't be measured.
5. We'd need more staff and lots of money.
6. They'll use the results against us.
7. No one will care about or use what we find. (p. 3)

Ewell (1997) also indicated that many initiatives in higher education to improve learning and assessment have failed, because they are not supported by incentive structures for individual faculty members, such as pay, promotion, and tenure, as well as budget making, political positions or reputation for academic units and institutions. He added two other reasons for the limited success of such efforts. One, they have been implemented without a deep understanding of what college learning really means, and two, they have been implemented in a piece-meal fashion both within and across institutions rather than systemic.

The Joint Task Force on Student Learning, a collaboration of the American Association of Higher Education, the American College Personnel Association and the National Association of Student Personnel Administrators, spent a year studying how to enhance and deepen student learning on college campuses. They analyzed 63 college initiatives in relation to the following five criteria: (a) are connected to the broader institutional culture; (b) offer evidence of a positive impact on learning; (c) add value to the mission and goals; (d) are adaptable to their institutions' circumstances; and (e) are

based on known principles of effective learning. Regarding criterion one, they found that most campuses did not exhibit a unified campus culture with a vision for student learning. Regarding criterion two, very few programs were able to demonstrate their impact on student learning. The task force stressed, "It takes a whole college to educate a student" (Engelkemeyer & Brown, 1998, p. 12).

Innovation Theories

Two theories might explain the lack of adoption of student assessment practices on college campuses, Rogers' (2003) Theory of the Diffusion of Innovations and Eckel and Kezar's (2003) Mobile Model of Change. This section presents the substance of these two theories, applicable research and how these theories might explain adoption of an assessment system at a higher education institution.

Rogers' Theory of the Diffusion of Innovations

Everett Rogers' (2003) theory of the diffusion of innovations, based on over 5000 research studies, explains how and why new ideas and practices are adopted by individuals, institutions and cultures**.** This is illustrated in Figure 4. He defines diffusion as "the process by which an innovation is communicated through certain channels, over time among members of a social system" (p. 110). The newness of the innovation creates "uncertainty," and information communicated through diffusion reduces this uncertainty. The decision to adopt is a process that moves through the following stages: knowledge, attitude, decision to adopt or reject, implementation and finally, confirmation. Social change occurs as new ideas are invented, diffused, adopted or rejected. Rogers' conception of diffusion includes both the spontaneous and planned spread of ideas.

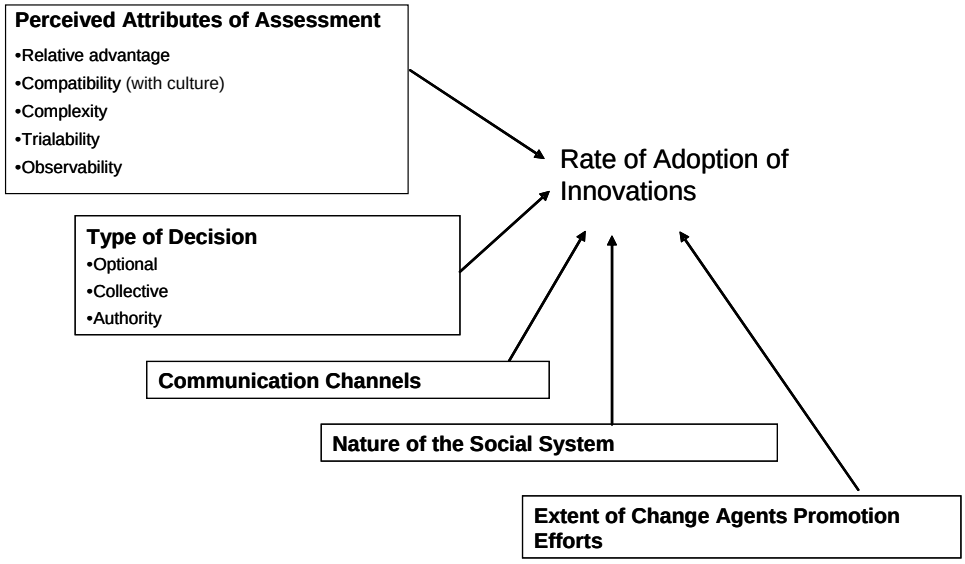

Figure 4. A model of Rogers' theory of the diffusion of innovations (2003).

Attributes of innovations. According to Rogers (2003), the attributes of innovations explain their rate of adoption. In fact, five attributes explain 49 to 87% of the variance in the rate of adoption: relative advantage, compatibility, trialability, observability, and complexity. Rogers also proposes that re-invention speeds up the diffusion process. Re-invention is the degree to which an innovation is changed or modified by a user in the process of adoption. A new idea that has been re-invented is more likely to be sustained.

Relative advantage is the degree to which the innovation is viewed as better than the idea it supersedes. Rogers (2003) claimed that the greater the perceived advantage, the faster the rate of adoption. Relative advantage can be measured in terms of economics, social prestige, convenience and satisfaction. Incentives and mandates to adopt an innovation serve to increase the relative advantage of an innovation.

Compatibility is the degree to which the innovation is seen "as consistent with the existing values, past experiences and needs of potential adopters" (Rogers, 2003, p. 240). The rate of adoption increases as the compatibility of the innovation with the adopters increases. A new idea that is compatible with the adopter's current thoughts creates less uncertainty and helps them give meaning to the new idea. An innovation can be compatible or incompatible with sociocultural values and beliefs, previously introduced ideas or the individual's needs for the innovation. A new value system may need to be adopted in order for an incompatible innovation to be accepted. Even the naming of the innovation can affect its compatibility with the adopters.

Complexity is the degree to which an innovation is viewed as difficult to understand and use. Any innovation can be viewed on a continuum from simple to complex. The more complicated the innovation, the slower the rate of adoption (Rogers, 2003).

Trialability is the degree to which an innovation can be experimented with on a limited basis. An innovation that can be tried creates less uncertainty to the potential adopter and so speeds up the adoption rate. Also, innovations that can be divided into smaller pieces and tried in that manner will be adopted more quickly (Rogers, 2003).

Observability is degree to which results of an innovation can be seen by potential adopters. If the adopters can see the results, they are motivated to communicate with others about the idea and this increases the rate of adoption (Rogers, 2003).

Communication. Communication is the process whereby participants create and share information in order to reach mutual understanding. Most people depend on a

subjective evaluation of an innovation that is conveyed to them by another individual who has already adopted the innovation. Thus, "the heart of the diffusion process consists of the modeling and imitation by potential adopters of their network partners who have previously adopted" (Rogers, 2003, p. 19).

Time. The adoption of an innovation usually follows an S shaped curve (see Figure 5). Adoption rises slowly at first, then accelerates until one-half of the individuals have adopted, then slows as the fewer remaining individuals adopt. Members of a social system can be rated on their innovativeness by how long it takes them to adopt an innovation. The classification system includes five categories, in order of earliest to latest time of adoption: innovators, early adopters, early majority, late majority and laggards (Rogers, 2003).

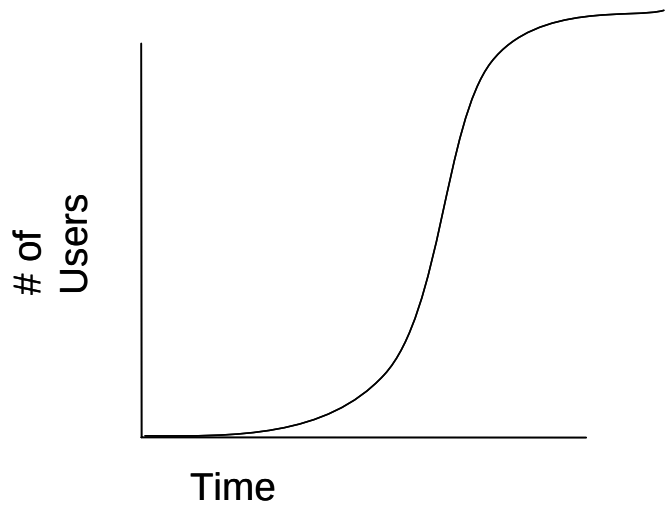

Figure 5. S shaped curve of adoption rate.

Innovators are the first to adopt, are comfortable with uncertainty and are willing to take risks. Their decision to adopt is not dependent on the evaluation of their peers.

The next to adopt are the early adopters. They are the opinion leaders of the social system, and other potential adopters look to them for advice about the innovation. Next in adopting are the early majority who are just ahead of the average member of the social system. These individuals are numerous within an organization, about one-third of all members. They are not leaders but interact frequently with their peers. They may deliberate a while before making their decision to adopt. The late majority makes up another one-third of the members and is skeptical of innovations. It takes the pressure of peers to motivate this group to adopt. The last to adopt are the laggards who are oftenisolated from their peers. They are grounded in "how things have been done in the past" (Rogers, 2003).

Social system. A social system is composed of individuals, groups or organizations. Within this system, there is a formal structure that provides stability to human behavior as well as informal structures of interpersonal networks. This structure can impede or facilitate the diffusion of innovations, although Rogers claims this has not been very well studied. The norms or established behavior patterns of the social system can also impede or facilitate diffusion. "Opinion leaders" within the social system greatly influence the diffusion of innovation. These are individuals who earn the respect of their peers independent of titles or positions. They generally have more exposure to external communication, have higher socioeconomic status and are more innovative (Rogers, 2003).

The social system influences the type of choice that the members can make about accepting/rejecting an innovation. An "optional" choice allows the individual member to

make the decision. A "collective" choice requires a consensus of the members that all must abide by once the decision is made. Finally, the "authority" choice involves only a few members with power or expertise making the decision for all to accept or reject. Authority decisions usually have the fastest rate of adoption, although members may circumvent it during adoption. Optional decisions are usually adopted faster than collective (Rogers, 2003).

The social system also influences the consequences or resulting changes of an innovation. The three types of consequences are desirable versus undesirable, direct versus indirect and anticipated versus unanticipated. An innovation is generally introduced to create consequences that are desirable, direct and anticipated. However, much cannot be predicted, such as the subjective perceptions of the members about the meaning of the innovation (Rogers, 2003).

Application of Rogers' Theory to Research Studies

Moore and Benbasat (1991) developed a valid and reliable instrument to measure the perceptions that an individual has toward adopting the personal computer work station. Their instrument was based on the work of Rogers (2003), Tornatzky and Klein (1982) and the dissertation work of Moore (1989). They designed the instrument to be adaptable to all innovations, although it was particularly well suited for information technology. The final instrument included 34 items with eight scales—relative advantage, compatibility, ease of use, result demonstrability, visibility, trialability, voluntariness, and image. The first six characteristics are from Rogers (2003), with "observability" split into "result demonstrability" and "visibility." Voluntariness and image were added by the

authors. Voluntariness was defined as "the degree to which the use of the innovation is perceived as being voluntary or of free will." Image was defined as "the degree to which use of an innovation is perceived to enhance one's status in one's social system" (p. 195). Although Rogers included image in his attribute of relative advantage, these authors chose to test it independently. Respondents were also asked if they were using a personal work station to measure the adoption decision. The response option for the items was a seven point scale from "extremely disagree" to "extremely agree."

The instrument development process involved four rounds of sorting by judges and three field tests (final test n = 800). The final instrument demonstrated acceptable levels of reliability (Chronbach's alpha > .70) and validity. The validity was tested by using factor and discriminant analyses. Factor analysis revealed that the innovation factors explained 63% of the variance in the data set. Discriminant analysis showed a strong association between the innovation attributes and adoption/nonadoption, and the predictors correctly classified 85% of the sample (Moore & Benbasat, 1991).

Carter and Belanger (2005) developed an instrument to identify factors that influenced citizen adoption of e-Government initiatives, such as online voting and license renewal. Government agencies around the world are making their services available online, and the success of e-Government initiatives is contingent upon citizens' willingness to adopt Web-enabled services. This study used Moore and Benbasat's (1991) perceived characteristics of innovating constructs to identify factors that influenced adoption of e-Government initiatives. To pilot test the adoption model, they administered a survey to 140 undergraduate students. Model testing was conducted with

four independent variables—perceived relative advantage, perceived image, perceived compatibility and perceived ease of use—and one dependent variable—use intentions; the latter involved asking respondents if they "would use" various services. The model explained 50% of the variance in citizen intent to adopt e-Government (adjusted R squared was .500, $F = 35.714$, $p < .0001$). Three of the four adoption factors—relative advantage, image and compatibility—were found to be significant in predicting citizen intention to use state e-Government services.

Hebert and Benbasat (1994) studied the influence of three factors on the intent to use bedside terminals by nurses—attitudes toward technology, subjective beliefs about others' expectations and perceived voluntariness. The questionnaire, a modification of Moore and Benbasat's (1991) original instrument, was administered to 479 nurses with a 32% response rate. They found that 77% of the variance of intent to use the technology was explained by three attitudes—relative advantage, compatibility and result demonstrability, and one subjective belief—the influence of the director of nursing. Based on this study, the authors offered the following recommendations:

- Clearly identify the benefits and advantages of using the new technology.
- Assure potential users that the new technology is compatible with their current values and beliefs.
- Demonstrate that the new technology will not diminish their role as care providers.
- Determine who the influential referents are in the organization with respect to the innovation and include them in the change process.

- Underscore the element of choice in the range of applications or the way that it is used.

Plouffe, Hulland and Vandenbosch (2001) compared the perceived characteristics of innovation (PCI) of Moore and Benbasat (1991) to the Technology Acceptance Model (TAM) in the adoption of a smart card by merchants; this was a credit card with an embedded microprocessor. TAM proposes two belief constructs to explain adoption of technology, perceived usefulness and perceived ease-of-use. Using Moore and Benbasat's 25 item short-form, they surveyed 379 merchants for a 46% response rate. They found that PCI explained 45% of the variance in intent to adopt, much higher than TAM. Six of the PCI had a significant effect on intention to adopt: relative advantage, compatibility, image, visibility, trialability, and voluntariness.

Dooley and Murphrey (2005) conducted a qualitative study to determine how to increase the use of technology in distance education initiatives. They conducted 42 interviews of administrators (n = 16), faculty (n = 15) and support unit employees (n = 11) who were familiar with distance education technologies. The results were categorized as strengths, weaknesses, threats and opportunities and then analyzed within the framework of Rogers' (2003) diffusion theory. Based on Rogers' attributes of innovations, the strengths of reaching new audiences and enhancing teaching and learning were classified as having "relative advantage." The weakness of insufficient incentives was viewed as lacking "compatibility" with the current environment for respondents. Technology was perceived as being extremely "complex," i.e., technology, scheduling and policy issues. "Trialability" was limited due to the time and effort needed

to convert courses into distance education format. “Observability” was found to be non-existent, unless a department had its own support staff, proximity to equipment or other rewards through tenure/promotion, development grants, etc. The authors concluded that the adoption rate of distance education technologies could be enhanced through revised policies/ procedures and the development of strategies to address the identified critical issues.

Eckel and Kezar’s Mobile Model for Transformational Change in Higher Education

Peter Eckel and his colleague, Adrianna Kezar, have studied how to introduce change into higher education (2003). Their ideas have some congruence with that of Everett Rogers as well as provide additional ideas for introducing innovations on college campuses. Their mobile model for transformational change was an outcome of the American Council on Education’s (ACE) Leadership and Institutional Transformation project funded by the W.K. Kellogg Foundation. The purposes of this five and one-half year study of 23 diverse colleges and universities were to: (a) help them make progress on a large change agenda of their own choosing; (b) assist them in understanding their change process and how to develop the ability to change again when needed; and (c) help outside observers learn from their successes and failures. Transformational change was defined as “(1) alters the culture of the institution by changing underlying assumptions and overt institutional behaviors, processes, and structures, (2) deep and pervasive, affecting the whole institution, (3) intentional, and (4) occurs over time” (Kezar & Eckel, 2002a, p. 1).

Kezar and Eckel (2002a) chose six of these institutions to study intensively that (a) had proposed a comprehensive change in teaching and learning, (b) had implemented the change, (c) were able to provide evidence of a change in their cultures, and (d) demonstrated sustainability of the change. Data were collected through participant observers at the institutions and site visits by research teams that conducted interviews, observed meetings, went to campus events, conducted informal observations, and analyzed institutional documents. Emergent themes were identified, negotiated between two reviewers and illuminated through narrative analysis.

Kezar and Eckel (2002a) identified five core change strategies across the six institutions—senior administrative support (show value, provide resources, add new administrative structures); collaborative/shared leadership, flexible vision (a clear and desirable picture of the future with goals and objectives that does not foreclose opportunities); staff development (opportunity to learn skills or knowledge related to change); and visible actions (activities are noticeable). Another finding was the core strategies allowed people to make new meaning, i.e., change the way they perceived their roles, skills and approaches/philosophies.

These core strategies were also found to be interrelated to 15 supporting-strategies in a non-linear pattern, i.e., they happen simultaneously as opposed to sequentially. These supporting strategies were:

- putting the local issues in a broader context;
- setting expectations and holding people accountable;
- using persuasive and effective communication;

- inviting people to participate;
- creating opportunities for participants to influence results;
- bringing people together in new ways or interactions;
- altering administrative and governance processes so that change was institutionalized;
- moderating momentum to prevent exhaustion and stalling;
- creating new, supportive structures;
- providing financial resources;
- providing incentives;
- having a long term orientation (years instead of months for adoption);
- finding connections among activities that create and sustain synergy;
- using external factors to promote internal change; and
- using the perspectives of outsiders. (Eckel & Kezar, 2003)

Kezar and Eckel (2002b) also analyzed the impact of culture on the five core change strategies in these six higher education institutions. Culture was defined as the "deeply embedded patterns of organizational behavior and the shared values, assumptions, beliefs, or ideologies that members have about their organization or its work" (p. 438). Following environmental scanning, they categorized the type of cultures they found in the various institutions and then compared the core strategies that each used for change. The culture classification system included the categories of collegial, managerial, developmental and negotiating. Collegial cultures arise from the disciplines of the faculty and value scholarship and shared governance decision making. Managerial

cultures focus on the goals-purposes of the institution and value efficiency, effective supervision and fiscal responsibility. A developmental culture is based on the personal and professional growth of its members. The negotiating culture values confrontation, interest groups, mediation and power.

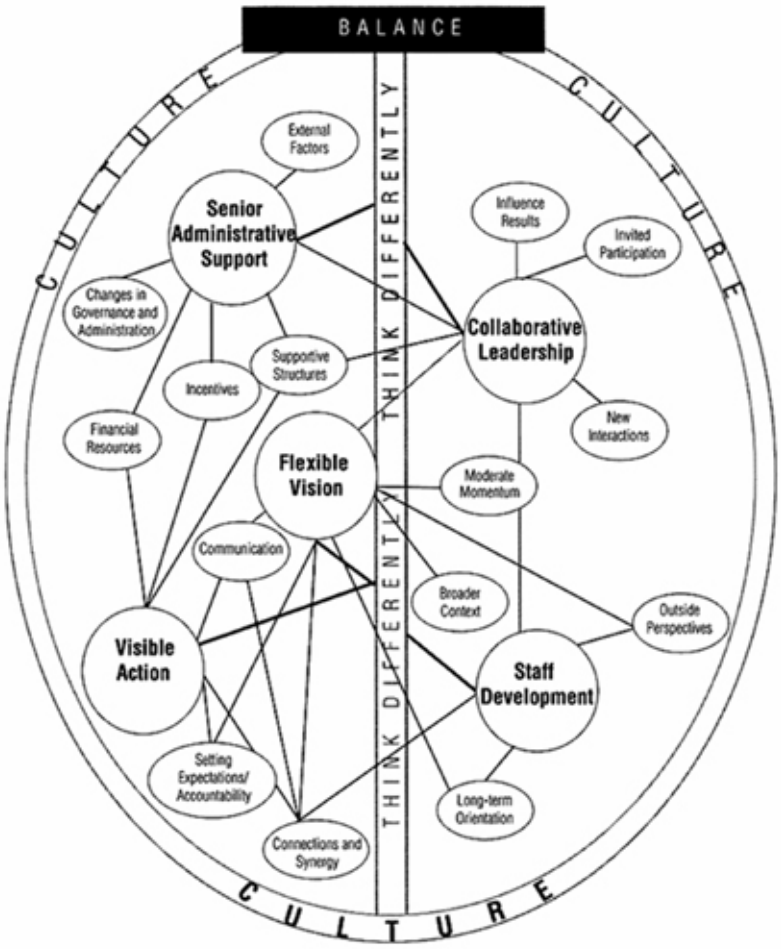

Figure 6. Mobile model for transformational change (Eckel & Kezar, 2003).

Kezar and Eckel (2002b) found that change strategies seemed to be successful when they were coherent with the dominant culture and not successful when they were incompatible with the culture. Their findings support the idea that change strategies do

vary by institutional culture and create the possibility of predicting which change strategies an institution should choose. To assess the culture of institutions, the authors recommend that change agents become cultural "outsiders." This may involve using outside consultants, appointing new leaders and participating in exchange programs.

The outcome of this comprehensive study was the mobile model for transformational change, illustrated in Figure 6, which explains the change process in higher education. The authors believed that change as described for traditional strategic planning and business reengineering, that is rational, orderly and linear, does not explain what happens in higher education (Eckel & Kezar, 2003; Kezar, 2001). Change in higher education is more complex and the operating characteristics of the institutions are different.

The outer ring of the mobile is "culture," because institutional culture affects the direction of the process and the strategies used to effect change. Balance is also featured at the top of the outer ring, illustrating that transformation requires balance; like a real mobile, tipping any one part can upset the dynamic. The inner part of the mobile is the five core change strategies connected to the fifteen substrategies; this illustrates that strategies are related and can occur simultaneously (nonlinear) (Eckel & Kezar, 2003)

The authors believe that using the illustrated change strategies will result in people "thinking differently" over the course of the change, which is the structure down the middle of the mobile. Eckel and Kezar (2003) claim that thinking differently or collective making of meaning is what holds the transformation process together and is probably the most critical element of this model. Thinking differently helps people make

sense out of uncertainty and understand what the change means for them. For instance, key players have to create new understandings of institutional directions and priorities, their roles in the change, and the ways that accepted notions of teaching, service and participation are evolving for them.

The authors provided four suggestions for using the Mobile Model in conducting a change process (Eckel & Kezar, 2003). One, begin change with a set of key questions, such as: Why do we need change? How much change is needed? Will it affect the values and assumptions of personnel? Will the change need to be sustained over time by campus personnel? Two, create a collaborative process, possibly through campus reading groups, and understand the campus culture. Three, develop baseline data for measuring progress. For this, the authors offer the following sources of evidence for structural change: changes in curriculum, changes in pedagogies, changes in student learning and assessment practices, changes in policy, changes in budget, new department and new decision-making structures. For attitudinal and cultural evidence of change, they suggest the following sources of evidence: changes in the ways groups interact, changes in campus language and the types of conversations that occur, abandonment of old arguments and new relationships with stakeholders. Fourth, make a convincing case for the need to change.

In summary, the work of Rogers (2003) and Moore and Benbasat (1991) proposes a model with eight scales that explains the adoption of an innovation, with the latter focused on an electronic innovation: voluntariness, relative advantage, compatibility, result demonstrability, visibility, image, trialability and ease of use Moore and Benbasat's

instrument was specifically designed for the adoption of a personal work station but believed it could be generalized to other innovations. While Moore and Benbasat's theory has been tested in environments other than higher education, Eckel and Kezar's (2003) theory was specifically developed for university campuses. Their theory proposes five change strategies that need to be in place for a change to succeed: senior administrative support, collaborative leadership, flexible vision, and staff development.

Eckel and Kezar's (2003) theory agrees with Rogers (2003) and followers in terms of a change/innovation initiative needing to be compatible with the culture of the institution. The two theories also agree that a change/innovation must be observable with results that indicate progress and improvement is occurring. The combination of the two theories creates a robust model for exploring the extent of and reasons for adoption of an online assessment system on a university campus as well as measuring its impact.

Assessment System as an Innovation

An assessment system for tracking student learning can be viewed as an innovation or change for higher education, as proposed by the theories discussed here. Even though the concept of assessment systems has been around for more than 25 years, "what is common knowledge and practice is still an innovation when it comes to individuals who are new to the practice" (Spuches et al., 2006). With this perspective, the adoption of an assessment system can be evaluated within the frameworks of Rogers' (2003) attributes of innovations and Eckel and Kezar's (2003) core change strategies.

In terms of *relative advantage*, the assumption prior to the assessment movement was that learning occurred as a result of professors presenting information and students

completing their assignments. The responsibility for learning was on the shoulders of the students. There was no driver to prove that learning occurred other than course grades and credit hours, especially not to accreditation agencies or the public. The new paradigm is that professors and campuses need to take additional steps to develop evidence of student learning. Although having such evidence is an advantage, conducting assessment for learner-centered education and using an institutional database takes time and effort on the part of professors. This may be particularly bothersome if they do not perceive any benefit to this database and assessment activities (lack of *result demonstrability*).

In terms of *compatibility* with campus culture, classroom assessment could be viewed as conflicting with existing campus values. Student outcomes assessment is often viewed as a "necessary evil promulgated by a zeal for accountability, and scholarship is largely synonymous with disciplinary research," not classroom assessment research (Shapiro, 2006, p. 42). Faculty members are also used to having total authority in their classrooms, deciding what to teach and how to evaluate student performance. Implementing additional or different assessment methods could be viewed as giving up control to the administration and to students. Assessment data about student learning or lack thereof could also be used by the campus administration to evaluate the professor, a practice that is not well received.

Continuing with campus culture and values, allowing students to evaluate the quality of their learning, acting as "customers" in their educational experiences, may be perceived as giving them too much control. Faculty members are generally opposed to this notion. Their argument is that students cannot know what they need to learn, so how

can they say how the experience should be better or different. The counter argument is that students can and should assess what improves their learning, even though they cannot evaluate the content of their curriculum. According to Swenson (1998), treating students as customers does not mean pandering to them or that they are always right. It also does not mean that faculty members never say "no" to students. However, it does mean treating students with respect and listening and adapting to their needs. Swenson recommends that: (a) faculty focus on student learning rather than teaching; (b) accept the responsibility to teach more than course content, such as thinking, writing, and working in teams; and (c) involve students in setting the objectives for their learning.

Regarding *complexity*, assessment is a whole new paradigm for education and so could be viewed as complex and abstract. Using an online assessment system would increase the complexity of the innovation. The application of *trialability* and *visibility* would be dependent on how a campus introduces the assessment system. If the assessment system is mandated with training, pilot projects and communication of the results, then the criteria for successful adoption would be met.

Along the same lines, campus assessment lends itself to the concept of *reinvention*, allowing faculty members and departments to customize the assessment process to meet their specific needs. According to Rogers (2003), such reinvention facilitates adoption. The process could allow faculty a choice in what skills/knowledge they want the students to learn in their classes and how they will assess whether that learning has occurred. In this environment, each faculty member could greatly modify existing assessment methods, such as portfolios or objective structured clinical

examinations, or invent their own. Departments could also freely choose their goals and what assessments met those goals for entry into the institutional database.

Senior administrative support, collaborative leadership, flexible vision, and *staff development* and *visible actions* were reflected in the successful change strategies for assessment systems that have already been described. For example, *senior administrative support* was reflected in the examples provided by Banta (2005b): recognition for engaging, expecting faculty to do assessment as part of scholarship, declaring that assessment is part of teaching, tying to annual performance, release time, summer salary, funding for travel, mini-grants, creating an office of assessment, etc. In terms of *collaborative leadership*, Southeastern Oklahoma State University used a director of assessment, an assessment team of individuals who served as specialists for their colleges and an Institutional Assessment Committee for policy development about assessment (Weiner & McMillan, 2005). In terms of both *flexible vision* and *staff development*, the AAHE Summer Academies allowed campus teams to develop a plan for a change project of strategic importance at their campus as well as receive training in how to accomplish this (Engelkemeyer & Landry, 2001). Finally, *visible actions* were illustrated in the DEEP project by Kuh and his colleagues (Kuh et al., 2005a) who stressed the importance of using data for decision making and then reporting the results.

Summary

In view of this review of the literature, Rogers' (2003) diffusion of innovations theory and Eckel and Kezar's (2003) mobile model of transformation theory provide appropriate theoretical frameworks to study the adoption of an assessment system on a

university campus. This case study will attempt to explain the adoption of the assessment system REAL across the MSU campus in terms of whether the faculty view it as: (a) having greater relative advantage, (b) being compatible with their needs and values, (c) something they can try out before using it, (d) easy to use, (e) having results that are visible, (f) enhancing their image, and (g) a required activity. Adoption of REAL will also be explained by the extent to which senior administrative support, collaborative leadership, flexible vision, staff development and visible actions were strategies used for implementation.

Chapter 3

Methods

Case Study

This research study used a mixed methods approach to examine a single case: an online assessment system at MSU. According to Yin (2003), a case study "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 13). The context of this case was the evaluation of REAL within the cultural setting of MSU, a land grant institution originally founded as an agricultural college in 1870. At the time of this study, MSU was classified by the Carnegie Foundation as a large, four-year university with 28,000 resident students. Graduate instruction was dominated by doctoral education, and research activity was very high.

Yin (2003) also emphasizes that a case study tries to explain a decision or set of decisions, why they were taken, how they were implemented and with what result. Similarly, this study sought to discover how REAL was implemented, the extent of adoption of REAL and the impact of REAL. A case study relies on multiple sources of evidence, and than triangulation of the data for final interpretation. The multiple data sources used in this study were survey data, interviews, and REAL database information.

Mixed Methods Approach

This case study used a mixed methods approach. Mixed methods is a research paradigm involving the collection and analysis of quantitative and qualitative data that are collected concurrently or sequentially, are given a priority and involve integration at

one or more stages in the research process (Tashakkori & Teddlie, 2003). This concept of mixing different methods is thought to have originated with Campbell and Fiske in 1959, when they used multiple methods to study the validity of psychological traits. They encouraged the use of the "multimethod matrix" to examine multiple approaches to data collection. This evolved into the concept of triangulation, proposed by Jick in 1979. Triangulation is using multiple methods, both qualitative and quantitative, in order to neutralize or cancel the biases inherent in any one method (Creswell, 2003). Recently, the reasons and procedures for mixed methods research have been greatly expanded, along with increasing interest in conducting such research (Creswell, 2003; Tashakkori & Teddlie, 2003).

A mixed methods approach may be appropriate if the researcher wants to converge findings from different sources or if she wants to use one approach to inform another one. A mixed methods approach is also helpful in capturing the best of both quantitative and qualitative approaches. For example, a researcher may want to both generalize findings to a population as well as get a detailed view of the meaning of a phenomenon (Creswell, 2003). A mixed methods approach was chosen for this study for all of the above mentioned reasons, particularly the desire to obtain a detailed view of assessment adoption on one campus and as well as generalize the findings to other campuses.

A sequential explanatory design was used for this mixed method approach as illustrated in Figure 7 (Creswell, 2003). The primary data collection method was

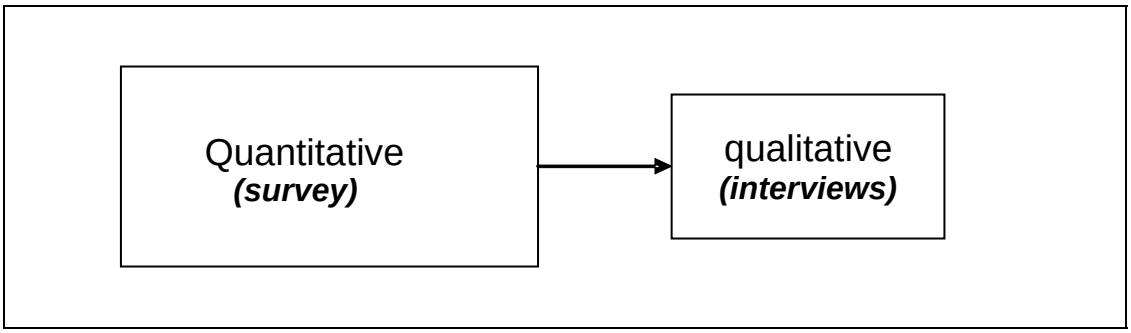

Figure 7. A sequential explanatory design for quantitative and qualitative data collection.

quantitative as indicated by the upper case Q and the secondary method was qualitative with the lower case q. The survey was followed by semi-structured interviews to elicit richer information about the attributes and impact of REAL. There was a separate data collection for each phase and then the findings were interpreted as a whole.

Quantitative Data Collection: Survey

Survey Instrument

The survey administered in this study is presented in Appendix B. *Inquisite* survey software was used to design this survey for online administration. The first section of the survey measured the demographics of the respondents. The second section measured how the respondents had used REAL and whether they were adopters, as well as whether they had received training and incentives. The third section measured the impact of REAL on teaching, student learning and campus practices.

The fourth section measured faculty perceptions towards REAL in terms of the innovation attributes developed by Moore and Benbasat (1991): voluntariness, relative advantage, compatibility, image, ease of use, result demonstrability, visibility, and trialability. These eight scales were derived from the diffusion attributes theorized by

Rogers (2003). Moore and Benbasat (1991) developed both a 38 item and a 25 item instrument, the latter being used in this study. The items on innovation attributes were modified as little as possible from Moore and Benbasat's. The exception was two questions added to the "relative advantage" scale to reflect the specific purposes of REAL (Questions 24 and 25). The questions were written to apply to both users and non-users of REAL.

Reliability and Validity

Moore and Benbasat (1991) thoroughly tested the reliability and validity of this instrument. All of their scales had Chronback alpha levels of .71 or above, with the majority > .80. In this study, all eight scales were also highly reliable. As illustrated in Table 1, the items within each of the eight scales were highly correlated. The Chronbach alpha levels for each of the scales were > .80.

Table 1

Chronbach's Alpha Reliability Coefficients for the Survey Scales

Scale Name	**# Items**	**Alpha**
Voluntariness	2	.933
Relative Advantage	7	.964
Compatibility	3	.942
Image	3	.917
Ease of Use	4	.905
Result demonstrability	4	.874
Visibility	2	.888
Trialability	3	.839

To determine the validity of their instrument, Moore and Benbasat (1991) used four sorting rounds by four judges which resulted in a 92% placement rate of survey items within the target constructs (except "observability" at 73%). They also used factor analysis to measure construct validity. Factor analysis reduces or simplifies number measurements by identifying a smaller number of underlying traits (SPSS, 2001). Using VARIMAX rotation, their intent was to reduce all the innovation attributes to eight traits or scales where the attributes within each scale were highly correlated and measured the same concept. If the attributes were found to measure the same concepts, this would support the validity of the instrument for measuring perceptions toward adoption of an innovation. The results were that seven of the eight scales in the survey emerged distinctly, without any items loading highly on more than one factor; however, "relative advantage" and "compatibility" merged into a single factor.

In this study, the researcher also used factor analysis to measure construct validity of the items in the REAL perceptions section of the survey (Appendix B, Questions 17-44). Seven of the eight scales emerged distinctly using principle components analysis with VARIMAX rotation, without any items loading highly on more than one factor. The one exception was question 20 in "relative advantage" that loaded more highly on the compatibility scale, a result similar to that of Moore and Benbasat (1991). Appendix C fully illustrates the results of the principle components analysis with VARIMAX rotation.

Sampling Strategy

Both purposeful and probability sampling were used. The purposeful sample included the 85 faculty members (including AAC members, n = 7) who routinely used REAL; they were responsible for entering program data. The population for the probability sample was the entire full-time faculty members (n = 901). From this population, the researcher randomly sampled 450 individuals to survey. This represented the sample size needed for a population of 901 with an expected response rate of 60% and a sampling error of 5%. Using Dillman's (2000) sampling formula of $Ns = (Np)\ (p)\ (1\text{-}p)\ /\ (Np\text{-}1)\ (B/C)^2 + (p)\ (1\text{-}p)$, the sample size needed was 270:
Ns the sample size, Np the size of the population, p the proportion of population expected to choose one of the two responses, B the sampling error and C the 1.96 Z statistic for the 95% confidence level. Using an estimated return rate of 60%, the necessary sample size became 450 (270/.60).

Due to the fact that attitudes toward REAL might vary among the colleges, this sample of 450 was further stratified to have proportionate distribution among the eight colleges at WMU (n = 901). Table 2 illustrates this stratified sampling strategy. Thus, the total sample for the survey was the 85 known users of REAL and 450 random faculty members for a total of 535 individuals.

Implementation Procedures

The survey was pilot tested by 5 faculty members at WMU who were users of REAL. They reported that the survey took 15-20 minutes to complete. Based on feedback from these individuals, some questions were modified to make them clearer to

Table 2

Survey Stratified Sampling Strategy

College	Total Full Time Faculty	% of Population	Sample Size
Agricultural Sciences	87	10	45
Applied Human Sciences	106	12	54
Business	52	5	22
Engineering	86	10	45
Liberal Arts	204	23	103
Natural Sciences	162	18	81
Veterinary Medicine & Biological Sciences	143	15	68
Natural Resources	61	7	32
Total	**901**	**100**	**450**

the respondents. Some new response options were also added as well as definitions of some of the terms used.

The survey was administered online through a link in an email message. Administration involved five points of contact as advocated by Dillman (2000). These points were:

1. Advance notice e-mail letter sent several days before the survey (see Appendix D).
2. First e-mail notification with consent statement, cover letter and link to the survey (see Appendix E).
3. "Thank you" e-mail letter a few days to a week after the first survey distribution to all possible respondents. It served as another reminder to non-responders. (see Appendix F).

4. Second e-mail notification with consent statement, cover letter and link to the survey sent two weeks after first survey (see Appendix G).
5. Third e-mail notification with consent statement, cover letter and link to the survey sent two weeks after second survey (see Appendix G).

All the correspondence with the respondents was sent out through the *Inquisite* system. The software tracked the return of surveys, based on the e-mail list of individuals originally entered into the software. The survey data collected was automatically entered into a database that was simultaneously designed with the survey. Data from the *Inquisite* server could be downloaded as needed as Excel, SPSS or Word files.

Data Analysis

Figure 8 illustrates the primary research model tested with this analysis. Descriptive statistics was first used with the survey data to determine frequencies, measures of central tendency and variability. Then, adopters were compared to non-adopters to identify the characteristics of each. The Mann-Whitney U-test was used to test for any differences in these characteristics, the appropriate test for comparing ordinal data (Gravetter & Wallnau, 2000). Next, correlations were used to discover whether increasing use of REAL was associated with increasing agreement with the innovation attributes. To test whether Moore and Benbasat's (1991) innovation attributes predicted adoption of REAL, logistic regression was used for the outcome variables that were categorical data (yes or no) and linear regression was used for the interval data (number of different ways REAL was used). Logistic regression is the statistical test of choice for prediction when there is a mix of continuous and categorical predictor variables to predict

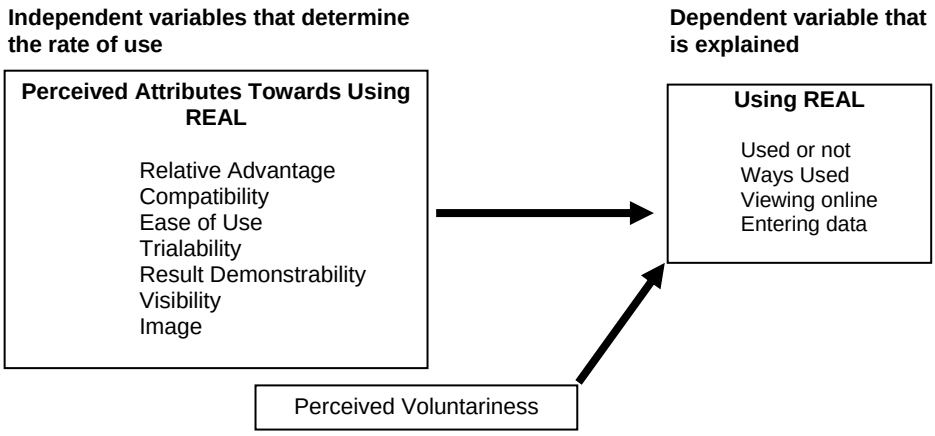

Figure 8. Primary research model tested in survey analysis.

a categorical outcome. Multiple regression is *not* considered appropriate for predicting a dichotomous dependent variable, such as used in this study (SPSS, 2001). SPSS software was used for data analysis.

Human Subject Protection

This project required an "expedited" IRB review, because the survey was not anonymous; the identity of the survey subjects had to be tracked for follow up purposes. The survey consent form (Appendix B and D) assured the respondents that their answers would be confidential and would only be released as summaries in which no individual's answers could be identified. The link between the identities of the respondents and their data was destroyed after data analysis. Appendix H is the approval letter received from the IRB for this project.

Qualitative Data Collection- Interviews

Instrument

The telephone interviews were conducted to: (a) expand on the reasons for adopting the assessment method, (b) obtain examples of the change strategies used on campus, and (c) evaluate the impact of the assessment system on MSU. A focus of these interviews was to identify whether the change strategies of Eckel and Kezar (2003) explained REAL adoption on the campus: senior administrative support, collaboration, flexible vision, visible actions and staff development. The script used for these interviews is in Appendix I. The interview questions were:

1. How was REAL introduced to you?
2. Do you have a clear understanding of the purpose of REAL?
3. What support did you get to implement REAL?
4. Was collaboration involved in implementing REAL?
5. Why did you decide to use REAL?
6. How have you used REAL?
7. Do you know how REAL has affected learning across the campus?
8. What could have/could be been done to improve the introduction of REAL on the MSU campus?
9. What is the history of REAL?

Sampling

Purposeful sampling was used for this component of the study. Ten interviews were conducted with nine individuals who had a great deal of experience with using

REAL. A tenth individual interviewed was incorrect in his identification of REAL; he described another, unrelated University database, so his comments were excluded from the study. Table 3 describes the college roles and assessment experiences of the nine participants. Of the nine, three were primarily administrators, one being the Director of Assessment. As to the other two administrators, one played a leadership role in program review and one was a leader in Student Affairs; both of these individuals also had faculty status. The other six participants were either academic deans (n = 2) or faculty members (n = 4).

Table 3

Participants and Their Assessment Experiences

Interviewee	Position	Assessment Committee Member	Use of REAL
1	Director of Assessment	Chair of AAC	Created and maintains REAL
2	Administrator with faculty status	No	Leader in program review. Supervisor of Director of Assessment.
3	Leader in a student affairs division with faculty status	Member of the SAAC	In charge of REAL for all student affairs divisions
4	Associate Dean	AAC	REAL responsibility for a college
5	Retired Associate Dean	Former member of AAC	REAL responsibility for a college
6	Faculty	No	Helped create the design for REAL
7	Faculty	No	Assigned to enter REAL data (just appointed)
8	Faculty	No	Assigned to enter REAL data
9	Faculty	No	Assigned to enter REAL data

Eight of the nine participants were recent users of REAL; the other participant was a faculty leader who helped with the early development of REAL prior to the HLC accreditation site visit in 2004 but had not used REAL since then. Three participants served on either the AAC or the Assessment and Research Steering Committee (SAAC), the Student Affairs peer review assessment committee. Three had been assigned to enter program assessment plans into REAL. One administrator used REAL data for program reviews.

Implementation Procedures

Prior to the actual interviews, an advanced notification email (see Appendix J) was sent to the participants to explain the purpose of the interview and to distribute the Consent Form. The potential participants were asked to read the Consent Form and then return an email message indicating their willingness to be interviewed. Following the return of the emailed consent, appointments were made for telephone interviews. The telephone interviews were digitally recorded with the device the *Digital Logger*. These digital interview files were stored on the researcher's computer. The digital recordings were then transcribed for analysis.

Verification

The internal validity or accuracy of the data was verified by the following strategies:

- triangulation of multiple data sources**;**
- member checking with the Director of Assessment to assess the veracity of the data;

- themes illustrated with rich, thick descriptions; and
- presentation of negative information.

Data Analysis

After reviewing the interview transcriptions, coding of the interview data began with the 11 categories from Moore and Benbasat (1991) and Eckel and Kezar (2003) that explain the adoption of innovations. These included the following: (a) voluntariness, (b) flexible vision, (c) senior administrative support, (d) collaborative leadership, (e) staff development, (f) visible actions (included visibility and result demonstrability), (g) relative advantage, (h) compatibility, (i) ease of use, (j) image, and (k) trialability. This strategy of starting the coding process from the conceptual framework of the study is advocated by Miles and Huberman (1994).

These coding categories were then broken down into second level categories as illustrated in Appendix K. This coding scheme listed the second level of categories within each first level category, the codes used in the Excel database and the research questions they each addressed. “Trialability” was eliminated due to a lack of related data and two categories were renamed; “flexible vision” became “vision for REAL” and “compatibility” became “compatibility with campus culture.” The definitions used for coding the interview information are provided in Table 4.

Following this analysis, themes emerged from the interview data that were greatly influenced by the theoretical lens from the two theories used in this study. These themes were illustrated with narrative passages to convey their meaning.

Table 4

Definitions of Coding Categories

Coding Categories	Definition
Voluntariness	Ways in which REAL was either required or not required
Vision for REAL	Descriptions of what REAL achieved or would achieve for the campus
Senior Administrative Support	Types of support provided by senior administrators to encourage adoption of REAL or lack thereof
Collaborative Leadership	Types of collaboration that occurred among campus leaders to facilitate the adoption of REAL or did not
Staff Development	Education and training efforts to assist campus personnel in learning the purpose of REAL and how to use it or lack thereof
Visible Actions	Ways in which REAL and its impact could be observed or could not (includes visibility and result demonstrability)
Relative Advantage	Ways in which REAL was better than prior practices or was not
Compatibility with Campus Culture	Ways in which REAL was compatible with how faculty work, faculty culture and campus practices or was not
Ease of Use	Ways in which using REAL was easy or hard to do
Image	Ways in which using REAL improved the image of programs or the campus or did not

Role of Researcher

Because the researcher is the primary data collection instrument in qualitative research, she needs to identify her personal values, assumptions and biases prior to beginning the study (Creswell, 2003). My perceptions of assessment and its impact on higher education have been shaped by my role as Director of Planning & Assessment at a dental college in the southwest. I have been in this role since 1994. I lead a team of faculty and administrators who evaluate progress on the College's strategic plan and decide how initiatives and college programs should be assessed. With this experience, I have gained a very favorable opinion about the value of assessment in higher education

and how it can improve an institution. I am also very familiar with the many reasons why assessment is not very popular among faculty members and even administrators. I believe that my understanding of assessment in higher education provided me with the appropriate lens to examine the introduction of an assessment system on a university campus.

Human Subject Protection

Multiple safeguards were used to protect the rights of the participants. One, the research purposes were articulated verbally and in writing so that they were clearly understood by the participants (including a description of how the data would be used). Two, permission to be interviewed was received from each participant. Three, the participants were assured that their names, title and years of experience would not be revealed (except the title for the Director of Assessment), following the request from MSU. Four, a letter of approval was received from the UNL Institutional Review Board (Appendix H) to proceed with the study, indicating that the research process adequately protected the participants.

Chapter 4

Findings

The purpose of this study was to explore how one university campus implemented an innovation, an online assessment system to measure the quality and extent of student learning during the higher education experience. The foci of this exploration were measuring the extent of assessment system adoption by campus faculty members, identifying their reasons for adoption and evaluating its impact on teaching and learning. This chapter presents the findings obtained from the quantitative (electronic survey) and qualitative components (interviews) of the study and relates the findings to the research questions.

Electronic Survey

Demographics

The electronic survey yielded a 42% response rate (239/568). The sample of respondents was representative of the total campus population, with the proportion of individuals from each of MSU's eight colleges about the same as that of the entire faculty. As illustrated in Table 5, the sample proportions for each college vary no more than 3% from the actual population. The sample is also representative of the entire faculty in terms of gender and rank. Figure 9 displays the faculty gender proportions in the sample and the campus population, while Figure 10 displays the distribution of academic rank among the two groups.

Table 5

Proportion of Survey Respondents versus the Faculty Population from the Colleges

College	College Proportion		Survey Proportion	
	N	%	N	%
Agricultural Sciences	87	10	26	11
Applied Human Sciences	106	12	37	15
Business	52	5	8	3
Engineering	86	10	16	7
Liberal Arts	204	23	62	26
Natural Sciences	162	18	35	15
Veterinary Medicine	143	15	35	15
Natural Resources	61	7	20	8
Total	**901**	**100**	**239**	**100**

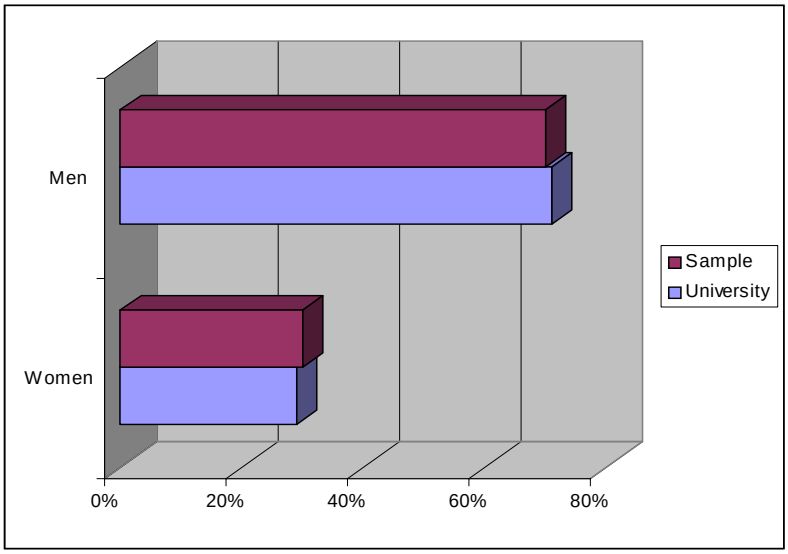

Figure 9. Gender proportions of faculty in the sample and the university.

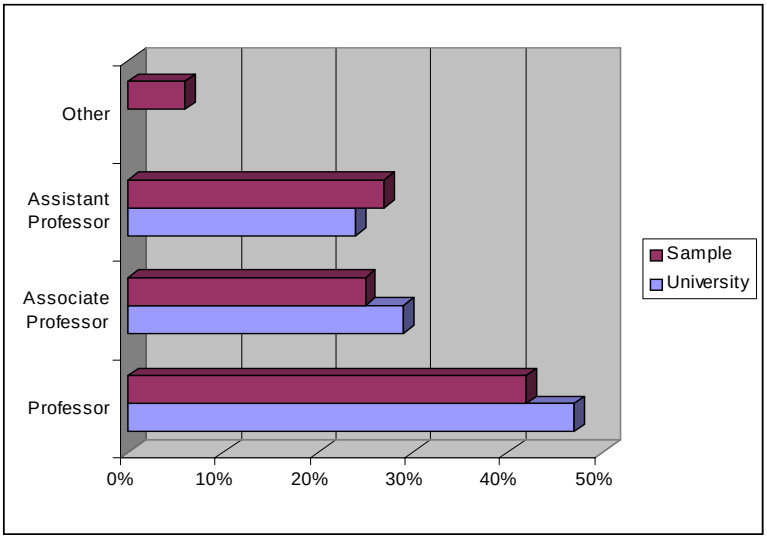

Figure 10. Academic rank proportions of faculty in the sample and the university.

Knowledge and Use of REAL

Appendix L reports the frequency results for every question, as well as a mean and standard deviation for the ordinal ranked data. Table 6 indicates that REAL was not well known to the faculty. Only 60% reported ever hearing of REAL, and only 35% had ever viewed REAL documents online or in paper form. Even fewer respondents had ever entered data into REAL (26%).

Table 6

Knowledge of REAL

Question	**No**		**Yes**		**Total**	
	%	**N**	**%**	**N**	**%**	**N**
Have you heard about REAL?	40	95	60	143	100	238
Have you gone online and viewed REAL?	65	154	35	84	100	238
Have you seen paper plans or reports?	65	155	35	83	100	238
Have you entered information/data?	74	177	26	61	100	238

Table 7 illustrates that faculty did not often use REAL. The most common response for how often they had used REAL was "never" (63.7%), with the next most common being 1-5 times (16.9%). The frequency for all other intervals was < 7%.

Table 7

Frequency of Using REAL

How Often	**%**	**N**
never	63.7	151
1-5 times	16.9	40
6-10 times	5.5	13
7-11 times	3.0	7
12-16 times	2.1	5
17-20 times	2.1	5
More than 20 times	6.8	16
Total	**100**	**237**

Table 8 illustrates the different ways that faculty used REAL and what they believed was the most important use of REAL. Regarding the different use types, the most frequent responses were program assessment (n = 72), program review (n = 52), department planning (n = 30) and accreditation (n = 24). Faculty ranking of importance was similar to the frequencies they reported, with the top three rankings being program review, accreditation and department planning; program assessment was not offered as an option in this question. Of the 118 respondents who chose "other" for this question, 103 either indicated that REAL was "useless" or they did "not know."

The majority (85.6%) of faculty indicated that REAL had *not* helped their department improve teaching or learning. For those individuals who responded

Table 8

How REAL Was Used and Ranked in Importance by Faculty

Type of Use	How Used* N	How Important	
		Rank	N/%
Program Assessment**	72		
Program Review	52	1	51/21.6%
Department Planning	30	3	18/7.6%
Accreditation	24	2	23/9.7%
Curriculum Development	19	5	10/4.2%
Classroom Teaching	7	4	12/5.1%
Research about Student Learning	3	7	1/.4%
Documentation for Promotion & Tenure	0	6	3/1.3%
Not At All/ Do Not Know	153		118/50.0%
Total Responses	**360**		**236/100%**

*Respondents could provide multiple answers so the total is larger than the size of the sample.
**Program assessment was not an option for the "how important" question.

positively, the improvements they indicated are shown in Table 9. Note that department goal setting, course content and student evaluation methods were the most frequently reported improvements.

Training and Incentives

Approximately one-quarter of the respondents were either shown how to use REAL (26.6%; n = 63) or were offered training (25.3%; n = 60). Only 17.7% (n = 42) participated in a formal training session. Consequently, a large number of MSU faculty respondents reported no training in using REAL. Only two faculty members reported receiving any incentive for working with REAL, one an opportunity to attend a workshop/conference and the other some release time.

Table 9

Teaching and Learning Improvements through REAL (n = 34)

Improvements	**Number of Responses**
Department Goal Setting	20
Course Content	17
Student Evaluation Methods	14
Student Learning in Courses	10
Department Student Learning Results	10
Teaching Methods	6
Facility	3
Total	**80***

*Respondents could provide multiple answers so the total is larger than the number of respondents.

Perceptions of Innovation Attributes

In the second half of the survey, data were collected about faculty perceptions of REAL based on the innovation attributes developed and tested by Moore and Benbasat (1991). The respondents reported their perceptions on a 7 point scale of agreement: 7 = strongly agree, 6 = agree, 5 = somewhat agree, 4 = neutral, 3 = somewhat disagree, 2 = disagree and 1 = strongly disagree. The frequency results for each question are provided in Appendix L. Table 10 demonstrates the overall mean and standard deviation for each of the eight scales as well as the mean, standard deviation and median for each scale item.

The list following Table 10 presents an interpretation of the table, demonstrating the overall scale means from highest level of agreement to the lowest. In general, the respondents reported some level of disagreement with REAL having the attributes that support adoption, except for “result demonstrability” and “voluntariness.”

Table 10

Descriptive Statistics for Perceptions of REAL

Attribute	Mean	SD	Median
Voluntariness "somewhat agree"	**4.98**	**2.35**	
• My Chair and /or Dean does NOT require me to use REAL.	4.92	2.47	6.00
• REAL is NOT compulsory in my work.	5.42	2.32	6.00
Relative Advantage "somewhat disagree"	**3.15**	**1.57**	
• REAL improves the quality of my work.	3.33	1.79	4.00
• REAL makes it easier to do my work.	2.82	1.59	3.00
• REAL improves my work performance.	3.03	1.72	3.00
• REAL enhances the effectiveness of my work.	3.17	1.73	4.00
• REAL gives me greater control over my work.	2.70	1.54	2.50
• REAL helps me plan and improve student learning.	3.38	1.83	4.00
• REAL provides me with new ideas for assessing and improving student learning.	3.60	1.90	4.00
Compatibility "somewhat disagree"	**2.88**	**1.63**	
• Using REAL is compatible with all aspects of my work.	2.80	1.70	2.00
• Using REAL fits well with the way I like to work.	2.98	1.75	3.00
• REAL fits into my work style.	2.92	1.71	3.00
Image "disagree"	**2.00**	**1.15**	
• People at MSU who use REAL have more prestige than those who do not.	1.97	1.20	2.00
• People at MSU who use REAL have a high profile.	2.20	1.36	2.00
• Using REAL is a status symbol at MSU.	1.75	1.06	1.00
Ease of Use "somewhat disagree"	**3.27**	**1.40**	
• Using REAL is NOT frustrating. **(positive version)***	2.64	1.45	2.00
• It is easy to get REAL to do what I want it to do.	3.20	1.60	3.00
• Learning to use REAL is (would be) easy for me.	4.01	1.58	4.00
• Overall, I believe that REAL is easy to use.	3.32	1.74	4.00

Table 10 continues

Attribute	Mean	SD	Median
Result demonstrability "neutral"	**3.71**	**1.69**	
• I would have no difficulty telling others about the results of using REAL.	3.83	1.96	4.00
• I believe I could communicate to others the consequences of using REAL.	3.92	1.98	4.00
• The results of using REAL are apparent to me.	3.12	1.97	3.00
• I would NOT have difficulty explaining why using REAL may or may not be beneficial. **(positive version)***	3.87	2.11	4.00
Visibility "disagree"	**2.26**	**1.38**	
• At MSU, one sees many people using REAL.	2.14	1.40	2.00
• REAL is very visible at MSU. **(positive version)***	2.35	1.50	2.00
Trialability "somewhat disagree"	**3.49**	**1.58**	
• I know where I can go to satisfactorily try out various uses of REAL.	2.70	1.83	2.00
• Before deciding whether to use any REAL applications, I was able to properly try them out.	3.58	1.83	4.00
• I was permitted to use REAL on a trial basis long enough to see what it could/can do.	3.21	1.78	3.00

*Respondents answered the question in the "negative version" which calls for disagreement with the statement. The responses were reversed in these calculations so that means all reflected the same concept of agreement.

- "somewhat agreed" (mean = 4.98) that they were *not* required to use REAL (*voluntariness scale*).
- were "neutral" (mean = 3.71) on the issue of whether they understood the results from REAL (*result demonstrability scale*).
- "somewhat disagreed" (mean = 3.15) that REAL had advantage over previous practices (*relative advantage scale*).
- "somewhat disagreed" (mean = 2.88) that REAL was compatible with their work (*compatibility scale*).

- "somewhat disagreed" (mean = 3.27) that REAL was easy to use (*ease of use scale*).
- "somewhat disagreed" (mean = 3.49) they had the opportunity to try out REAL (*trialability scale*).
- "disagreed" (mean = 2.00) that using REAL was a status symbol used by important people on campus (*image scale*).
- "disagreed" (mean = 2.26) that REAL was very visible on campus (*visibility scale*).

The responses for the specific questions within the various scales, also illustrated in Table 10, provide more clarity on the perceptions of the respondents. Here is a listing of some examples.

- "somewhat agreed" (mean = 5.42) that using REAL was *not* compulsory in their work (*voluntariness scale*).
- "somewhat disagreed" (mean = 3.38) that REAL helps them plan and improve student learning (*relative advantage scale*).
- "somewhat disagreed" (mean = 2.80) that REAL was compatible with all aspects of their work (*compatibility scale*).
- "disagreed" (mean = 1.97) that people who use REAL have more prestige (*image scale*).
- "somewhat disagreed" (mean = 3.20) that it was easy to get REAL to do what they wanted (*ease of use scale*).

- "somewhat disagreed" (mean = 3.12) that the results of using REAL were apparent to them (*result demonstrability scale*).
- "disagreed" (mean = 2.35) that REAL was very visible on campus (*visibility scale*).
- "somewhat disagreed" (mean = 2.70) that they knew where to go to try out various uses of REAL (*trialability scale*).

Comparisons Between Adopters and Non-adopters

Demographics of adopters and non-adopters. In order to compare adopters to non-adopters, the researcher created a new outcome variable "either uses REAL or not" from an existing one (from q. 10 "Estimate how often you have used REAL"). Adopters were those who reported using REAL and non-adopters were those who had not. Eighty-six respondents indicated that they had used REAL one or more times. As illustrated in Table 11, they are distributed throughout the eight colleges in proportions that reflect the overall sample within 5%, except for Applied Human Sciences and Veterinary Medicine & Biological Sciences. The former had a much higher proportion of adopters (+11%) and the latter had a much smaller proportion (-12%).

Characteristics of adopters and non-adopters. Table 12 profiles the key characteristics of adopters and non-adopters. An important difference is that adopters largely served on assessment committees (83%), while non-adopters did not (33%). While adopters have used REAL for multiple purposes, non-adopters have either not heard of it (63%) or have rarely encountered it (≤11%). While the majority of adopters were shown how to use REAL (67%) and were offered training (54%), the non-adopters

Table 11

Proportion of REAL Adopters within the Colleges Compared to Sample

College	Adopters in Sample (N)	All Sample Respondents (N)
Agricultural Sciences	13% (11)	11% (26)
Applied Human Sciences	26% (22)*	15% (37)
Business	2% (2)	3% (8)
Engineering	5% (4)	7% (16)
Liberal Arts	31% (26)	26% (62)
Natural Sciences	11% (9)	15% (35)
Veterinary Medicine	3% (3)*	15% (35)
Natural Resources	9% (8)	8% (20)
Total	**100% (85)**	**100% (239)**

*varies > 5% from sample %

Table 12

Profile of REAL Adopter and Non-adopter Characteristics

Characteristic	Adopters (n) n = 86	Non-adopters (n) n = 151
Served on assessment committee	83% (71)	33% (50)
Heard of REAL	100% (86)	37% (56)
Viewed REAL online	88% (76)	5% (8)
Seen paper Plans/reports	76% (65)	11% (17)
Assigned to enter plans/results into REAL	52% (44)	6% (9)
Entered data into REAL	67% (58)	2% (3)
Have used REAL for:		
• Program assessment	80% (69)	1% (2)
• Program review	61% (52)	0% (0)
• Department Planning	33% (28)	0.7% (1)
• Accreditation	27% (23)	0.7% (1)
• Curriculum development	20% (17)	1% (2)
Most important use- program review	42% (36)	10% (15)

Table 12 continues

Characteristic	Adopters (n) n = 86	Non-adopters (n) n = 151
Used REAL:		
• 1-5 times	46% (40)	0% (0)
• 6-10 times	15% (13)	0% (0)
• 7-11 times	8% (7)	0% (0)
• 12-16 times	6% (5)	0% (0)
• 17-20 times	6% (5)	0% (0)
• > 20 times	19% (16)	0% (0)
Were shown how to use REAL	67% (58)	3% (5)
Were offered training	54% (46)	9% (14)
• Participated in training	44% (38)	3% (4)
Were given an incentive/reward	2% (2)	0% (0)
REAL has helped improve teaching/learning.	33% (28)	4% (6)

were not (3%). Rewards or incentives were essentially not offered to either group (< 3%). It is interesting to note that neither group believed that REAL had improved teaching or learning. Only 33% of the adopters responded positively and 4% of the non-adopters.

Perceptions of adopters and non-adopters towards REAL. In testing their perception of innovation instrument, Moore and Benbasat (1991) compared the scores of adopters and non-adopters and found that the adopters reported significantly stronger agreement on every scale, except voluntariness. This finding strongly supported the validity of their instrument, because they had identified perceptions associated with adoption of an innovation. To recreate this comparison, a scale score was calculated for each respondent that was the sum of all their item ratings within a scale. These were then used to calculate overall scores for each scale. This was an appropriate strategy, because the factor analysis indicated that the items within each scale measured the same concepts

(SPSS, 2001). The scores were reversed for items requesting disagreement (Questions #32, 39, & 41); a rating of 1 was changed to 7, 2 to 6, 3 to 5, etc. The two group scores were then compared with the Mann-Whitney U test, the appropriate test for ordinal/nonparametric data. The results are indicated in Table 13.

Table 13

Comparison of Scale Scores Between Adopters and Non-adopters

Perceived Attributes	**Adopter Means (sd) n = 86**	**Non-adopter Means (sd) n = 151**	**Mann Whitney U-Test P Values***
Voluntariness	3.56 (2.40) "neutral"	6.26 (1.37) "agree"	< .001**
Relative Advantage	2.41 (1.23) "disagree"	2.53 (1.23) "somewhat disagree"	.727
Compatibility	2.75 (1.68) "somewhat disagree"	3.18 (1.47) "somewhat disagree"	.159
Image	2.03 (1.19) "disagree"	1.97 (1.10) "disagree"	.800
Trialability	3.64 (1.59) "neutral"	3.09 (1.51) "somewhat disagree"	.169
Visibility	2.78 (1.53) "somewhat disagree"	1.81 (1.06) "disagree"	< .001**
Result demonstrability	4.01 (1.70) "neutral"	3.09 (1.48) "somewhat disagree"	.009**
Ease of Use	3.23 (1.45) "somewhat disagree"	3.46 (1.29) "somewhat disagree"	.398

*Due to multiple testing, the more stringent probability value of < .01 was used rather than < .05.
**Significant differences

Only three of the attributes measured with this instrument reflected the significantly higher agreement for adopters that Moore and Benbasat (1991) predicted, "voluntariness," "visibility" and "result demonstrability." Specifically, the adopters

believed that the decision to use REAL was a less voluntary one than the non-adopters. This can probably be explained by the fact that 52% of the adopters were required to enter data into REAL, while the non-adopters were not (6%). Adopters also believed that REAL was more visible on campus and that they were more knowledgeable about the results of REAL. Note that three other scale scores were lower for the adopters, although not significantly lower: "relative advantage," "compatibility" and "ease of use." Again, this finding is counter to what Moore and Benbasat's theory would predict.

When comparing the scores of adopters and non-adopters on the individual items (within the eight scales), similar results were obtained (Table 14). Mann Whitney U tests revealed that adopters had significantly stronger agreement ($p < .001$) on both "voluntariness" questions, two "visibility" questions and one "result demonstrability." One new perception for "trialability" emerged with adopters having significantly stronger agreement about knowing where to go to try out REAL.

Associations Between Perceptions and REAL Use

Correlations were used with two outcomes variables of REAL adoption in order to discover whether using REAL increased the strength of agreement with the innovation attributes. The variables were "how often REAL was used" (Question 10) and "the number of different uses reported" (summed from Question 9). The significant results are indicated in Table 15. Note that the same attributes identified previously as good discriminators between adopters and non-adopters are indicated here—"voluntariness," "result demonstrability," "visibility," and "trialability."

Table 14

Significant Differences Between Adopters and Non-adopters on Scale Items

Perceived Attributes	**Adopter Means (sd) n = 86**	**Non-adopter Means (sd) n = 151**	**U-Test Significance***
Voluntariness			
My chair or dean does NOT require me to use REAL.	3.28 (2.50) "somewhat disagree"	6.28 (1.39) "agree"	< .001
Although it might be useful, using REAL is certainly NOT compulsory in my work.	3.84 (2.52) "neutral"	6.28 (1.36) "agree"	< .001
Trialability			
I know where I can go to satisfactorily try out various uses of REAL.	3.66 (1.88) "neutral"	1.85 (1.30) "disagree"	< .001
Visibility			
At MSU, one sees many people using REAL.	2.65 (1.64) "somewhat disagree"	1.73 (0.99) "disagree"	< .001
REAL is very visible at MSU.	2.97 (1.61) "somewhat disagree"	1.84 (1.19) "disagree"	< .001
Result demonstrability			
The results of using REAL are apparent to me.	3.58 (1.99) "neutral"	2.28 (1.62) "disagree"	< .001

*Due to multiple testing, the more stringent probability value of < .01 was used rather than < .05.

Table 15

Significant Correlations Between Innovation Attributes and REAL Use

Question	How Often Used		# of Ways Used	
	R	**P***	**R**	**P***
Voluntariness				
My chair or dean does NOT require me to use REAL.	-.599	< .001	-.568	< .001
Although it might be useful, using REAL is certainly NOT compulsory in my work.	-.550	< .001	-.548	< .001
Relative Advantage				
Using REAL helps me plan and improve student learning.			.243	.010
Using REAL provides me with new ideas for assessing and improving student learning.			.295	.002
Result demonstrability				
I believe I could communicate to others the consequences of using REAL.	.254	.004		
The results of using REAL are apparent to me.	.400	< .001	.372	< .001
Visibility				
At MSU, one sees many people using REAL.	.354	< .001	.344	< .001
REAL is very visible at MSU.	.439	< .001	.385	< .001
Trialability				
I know where I can go to try out uses of REAL.	.537	< .001	.488	< .001

*Due to multiple testing, the more stringent probability value of < .01 was used rather than < .05

Regarding the associations between perceptions of REAL and using it, Figure 11 illustrates that understanding REAL results were more apparent as the respondents used it for more purposes. Figures 12 and 13 illustrate that the relative advantages of using REAL were more apparent as the respondents used it for more purposes, specifically the advantages of providing new ideas and helping with planning for student learning.

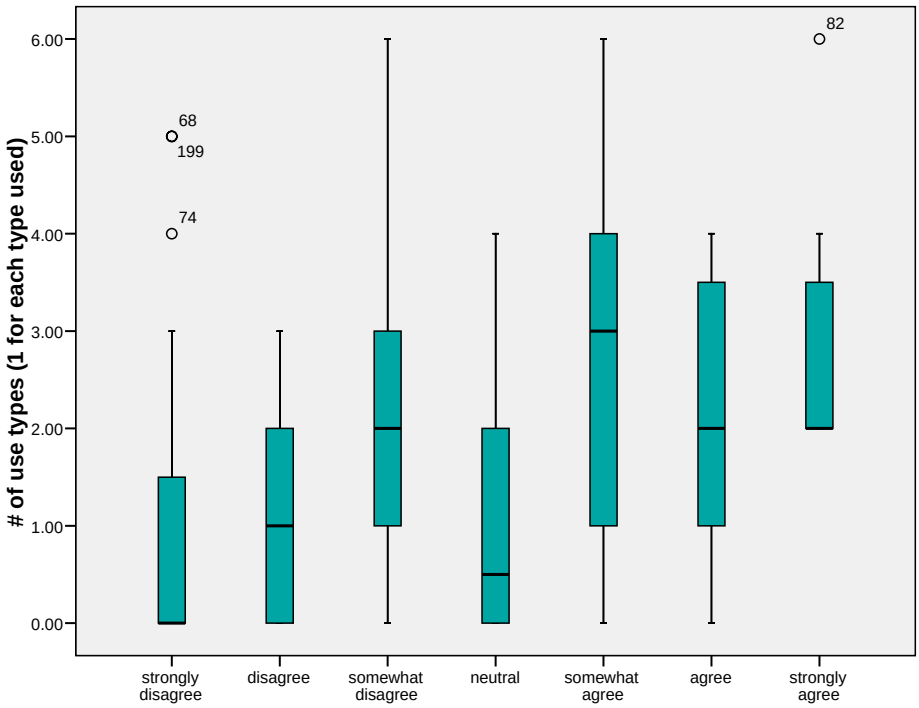

Figure 11. Agreement with "results of using REAL are apparent" grower stronger as "the number of different uses" increases.

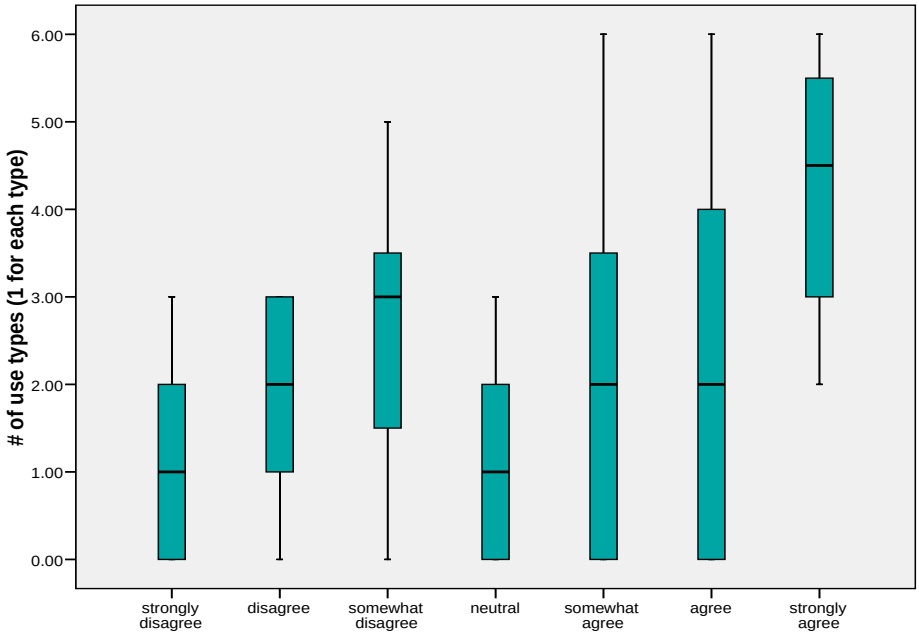

Figure 12. Agreement with "provides me with new ideas for assessing and improving student learning" growing stronger as "the number of different uses" increases.

.

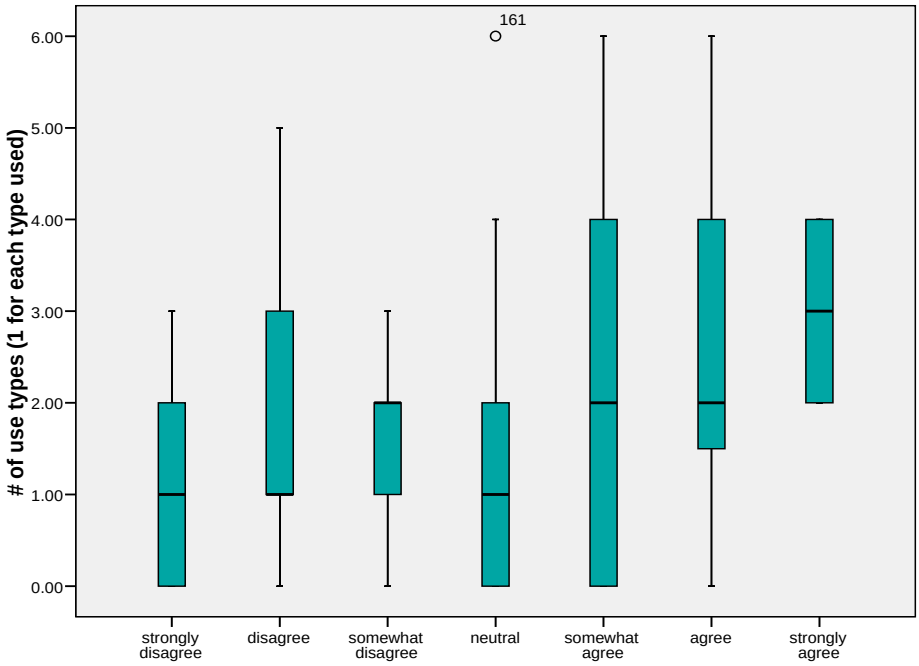

Figure 13. Agreement with "helps me plan and improve student learning" growing stronger as "the number of different uses" increases.

Prediction of Adoption

When all eight scale scores were used to predict "whether REAL was used or not," the logistic regression model was *not* significant; however, "voluntariness" was identified as a significant variable (p = .024). When two other dependent variables were used, the logistic regression model with all eight scales was found to be significant: "going online to view" REAL (p = .001) and "entering data" into REAL (p = .001). With "going online to view" as the dependent variable, the model explained 58% of the variance, correctly classified 85.7% of the sample and was better at predicting the REAL viewers (93%) than non-viewers (54.5%); however, "voluntariness" was again the only significant variable (p = .035). With "entering data into REAL" as the dependent variable, the eight scale model explained 51% of the variance, correctly classified 78.6%

of the sample and was again better at predicting the data entry people (82%) than non-data entry (73%): both "voluntariness" (p = .002) and "compatibility" (p = .014) were significant variables with this model.

When "voluntariness" alone was used as the predictor variable for "whether or not REAL was used" with logistic regression, it was a significant predictor (p = < .001) that explained 41% of the variance. As illustrated in Table 16, the prediction correctly classified 77.4% of the sample, better predicting non-adopters (87.5%) than the adopters (66.3%). Figure 14 presents the histogram of predicted probabilities using voluntariness. If the prediction was 100% accurate, the two different groups would fall clearly on one side or other of the .5 cutoff line. In this case, more users were on the wrong side of the cutoff line than non-users. Using regression to test the dependent outcome variable "number of different ways REAL was used," "voluntariness" was also a significant predictor (< .001) explaining 32% of the variance. Thus, "voluntariness" was the most consistent predictor of REAL adoption for the various models, with compatibility a significant predictor for one of the outcome variables.

Table 16

Classification Table for Predicting the Accuracy of Using REAL with Voluntariness

Observed		Predicted		
		Whether used or not		Percentage Correct
		Never used	Used 1 or more times	Never used
Whether used or not	Never used	77	11	87.5
	Used 1 or more times	27	53	66.3
Overall Percentage				**77.4**

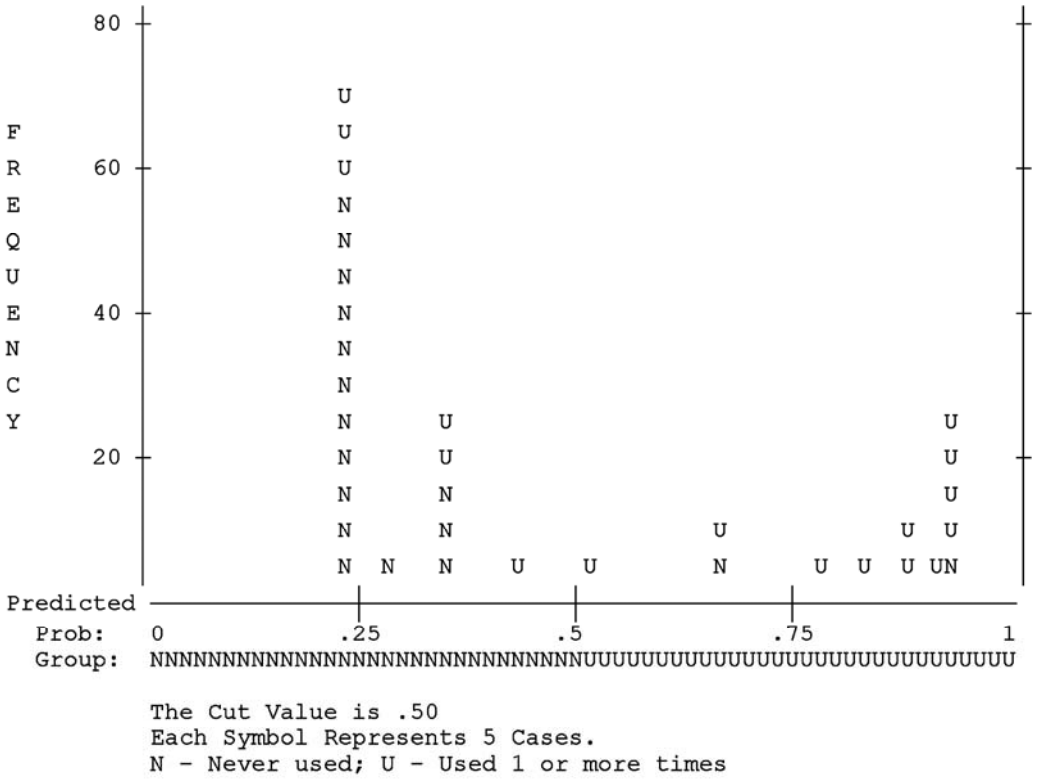

Figure 14. Predicted probability of membership in user/non-user groups due to voluntariness.

Independent of Moore and Benbasat's (1991) innovation attributes, "being on an assessment committee" and "being offered training" significantly predicted ($p > .001$) whether or not a respondent used REAL. Logistic regression revealed that "serving on an assessment committee" explained 29% of the variance associated with adoption of REAL. The prediction was correct 82.6% of the time, more accurate for users (83% correct) than that for nonusers (67% correct). Similarly, logistic regression revealed that "being shown how to use REAL" explained 55% of the variance associated with adoption

of REAL. The prediction was correct 86.1% of the time, much more accurate for non-users (96.7% correct) than that for users (67.4% correct).

When "serving on an assessment committee" and "being shown how to use REAL" were combined, the logistic regression model was again significant ($p < .001$), explaining a larger amount of variance (62%) than either variable alone. Both the assessment committee membership ($p < .001$) and being offered training ($p < .001$) were significant variables. Table 17 provides the classification table for this prediction. Note that the accuracy of the prediction remained exactly the same as "being offered training alone," correct 86.1% of the time, 96.7% for non-users and 67.4% for users. Figure 15 illustrates the histogram of predicted probabilities for this prediction using the two combined independent variables. In this prediction, more users were again on the wrong side of the cutoff line than non-users.

Table 17

Classification Table for Predicting the Accuracy of Using REAL with Assessment Committee Membership and Being Offered Training

Observed		Predicted		
		whether used or not		Percentage Correct
		Never used	Used 1 or more times	Never used
Whether used or not	Never used	146	5	96.7
	Used 1 or more times	28	58	67.4
Overall Percentage				86.1

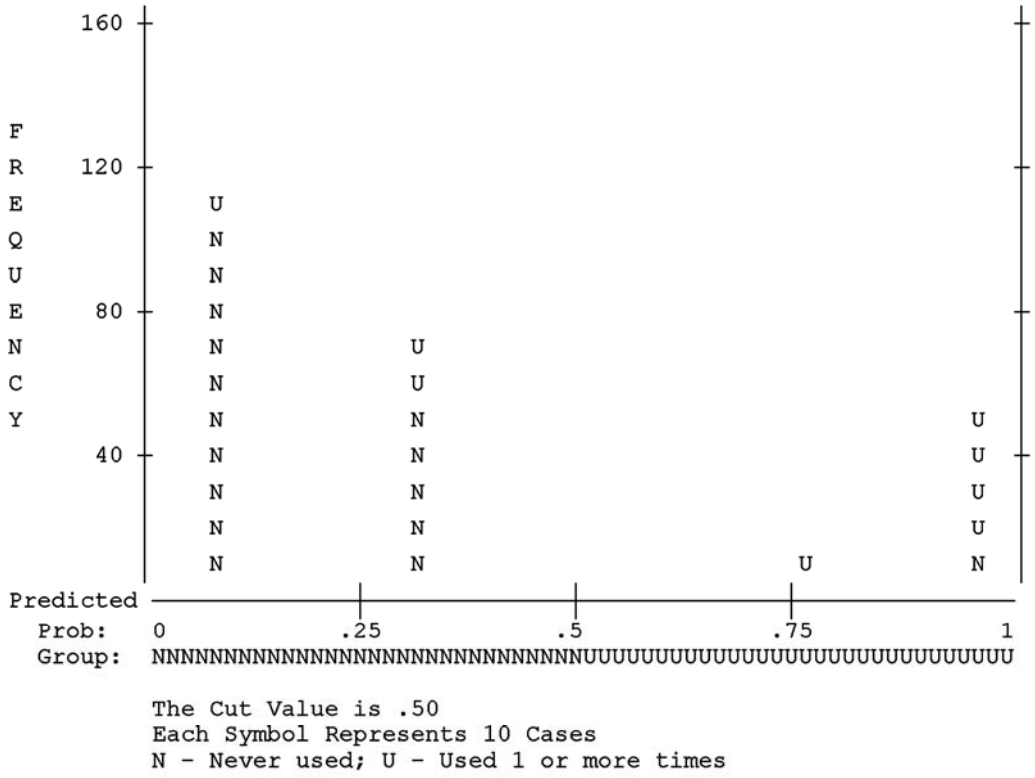

Figure 15. Predicted probability of membership in user/non-user groups due to assessment committee membership and being offered training.

What Would Increase or Improve Use of REAL?

The above question (#45) called for an open-ended response at the end of the survey. Fifty-eight individuals responded. The responses were coded in Excel according to the 11 categories from the theoretical frameworks of Moore and Benbasat (1991) and Eckel and Kezar (2003). Table 18 illustrates 9 of these coding categories, associated second level categories and the frequencies. None of the responses related to the concepts of collaborative leadership or image.

Table 18

Coding Categories from Survey Question "What would increase or improve use of REAL?"

Category	**Frequency**
Staff Development	43
Compatibility	25
• Needs to relate to teaching/research	(12)
• No time/overburdened	(9)
• Need for integration with other processes	(2)
• AAC (Assessment Committee) too critical of assessment plans	(2)
Relative Advantage	25
• No advantage	(12)
• Need to know advantage	(10)
• Bureaucracy/For Administration	(3)
Senior Administrative Support	20
• Incentives needed	(6)
• Need support	(6)
• Needs to have value	(6)
• Communication about REAL	(2)
Voluntariness	13
• Already required	(8)
• Would need to be required	(5)
Ease of Use (all negative)	15
• REAL Interface	(6)
• Simplify	(5)
• Access issues	(3)
• Support	(1)
Trialability	6
Visible Actions	5
• What peers think about REAL	(3)
• Results need to matter	(2)
Flexible Vision (storage of results overtime for longer-term reviews)	1
Do Not Know	61
Total	**214**

Regarding staff development, the most frequently reported category, faculty specifically asked for more information, training or just needing to know what REAL was. The primary issues in compatibility were that REAL did not relate to the work of faculty, teaching or research, and there was no time to spend on it. This incompatibility problem between REAL and faculty culture, as well as a lack of relative advantage, was expressed by one professor:

> If my department head forced me to be the assessment person for the department, I would have to learn how to use it. Otherwise, this program and its utility are not even on my radar screen. When our departmental assessment person gives presentations on the REAL input and output, we all roll our eyes and can't wait for it to be over. This mandatory program does not affect the way we do things at all. We just do it because the University administration forces us to. Most faculty feel this way. Just another added layer of administration to deal with and take time away from research, writing, grants, and teaching. We do not actually use the output from REAL for anything except pleasing the administrators. They can say to the President and even legislators that we "have an ongoing process for assessing the quality of what we do. . . .

Another professor addressed the "no time" concept as well as lack of communication.

> There has been no concerted effort that I am aware of to communicate about this program. Keep in mind that I am an assistant professor chasing tenure, keeping up with coursework, and participating in university service. I also have a family. It really becomes difficult to take on new programs/software/initiatives unless we are forced to, and then it only begrudgingly happens. It's just the nature of the beast. Something like REAL is just one of dozens of initiatives swirling around in the storm of issues we have to deal with. It probably seems profoundly relevant to those promoting it, but I think they should look closely at the actual working experience of faculty before making assumptions about how it will be adopted.

The following are more examples of the incompatibilities some faculty members perceived between REAL and their work. The specific incompatibilities addressed in each quotation are listed above them.

- Already doing assessment that is better than REAL; no time to do REAL;

  REAL is just a bureaucratic process; would only do it if required.

  I would not use it if I were not required to. I think it is a layer of duplicative bureaucracy that takes its faculty users away from teaching and creative/research work. People in my department are already heavily involved in regular assessment of our students, courses and programs, and it is superfluous to have to record and report this in yet another arcane manner. The only possible benefit of this I can see is the storage of results overtime; which then can be accessed for longer-term reviews. However, the methods and reporting of information should be left to the individual departments and not dictated by bean-counters.

- Teaching is more important than REAL; REAL is not related to teaching.

  If there weren't more important parts of my job like (most important) teaching my students or writing a book or advising the honor society or participating in national academic organizations, then I could fritter away my job on a tool that allows me to judge whether or not I am doing my job according to some numerical and rather irrelevant standards.

- No time to do REAL; no incentive to do REAL; REAL is not related to

  learning.

  REAL is just another large bit of work piled on the faculty and there is no incentive or reward. It has negative consequences! I fail to see what it can do that's beneficial and again, it is a huge time taker. We are running our behinds off, and its one more thing. If you want that information, then pay somebody to collect it. In no way does it have ANY bearing on student learning.

- REAL is not related to learning; it is too generic for a given discipline.

  REAL is a wretched instrument for measuring student learning. It has not been designed by people who have any understanding of what historians are trying to teach their students. This additional layer of assessment, using terms and questions that try to fit every discipline and end up fitting none, is a complete waste of faculty time. It serves no one well. Students in History have in no way benefited from REAL.

Regarding relative advantage, the majority of comments either indicated there was no advantage to using REAL or that they did not know the advantage. One professor

clearly expressed the problem; "REAL is invisible on this campus—before it would be widely adopted, its advantages need to be made clear and training in how to use it must be made readily available." REAL was also viewed as important to the administration but not to faculty, a "top down tool." One professor stated,

> I think the entire effort is motivated by managers and bean counters and has no relevance to learning and successful teaching. If the measures could have some real meaning for the process in which we are engaged it might be helpful, but I do not see this happening because the motivation for the evaluation is all wrong.

Regarding senior administrative support, one of the themes was the issue of REAL needing to be valued by the University leadership. As one faculty member said, I would use it "if it counted in some way." Another said he/she would use it "if I really thought that anyone in this university was paying any attention to the results, other than the REAL director, who really tries his best." One respondent expressed this idea that the institution did not value assessment.

> Unfortunately, MSU has made almost no significant commitment to assessment of student learning or program review. These topics are not discussed at department meetings. They are not discussed at college meetings. Our institution's big challenge is to hold the line in severe budget times. To be totally candid, assessment is a very low priority when faculty are leaving or overburdened, and administrators are just trying to handle the essential responsibilities of their positions.

Another respondent's perception was that research mattered but REAL did not. "Teaching and advising outcomes are not highly rewarded in the University structure, so there is little incentive to adopt 'new' techniques like REAL. In fact, emphasis on research and grants creates a disincentive for using REAL." Incentives were also presented as important for adoption as well as support and communication about REAL.

Comments about voluntariness either indicated that REAL was required of them or that it would need to be required for them to adopt it. As one respondent stated,

> This has been a compulsory, mandated unfunded activity. I have had no input into its adoption. I can see its utility for ticking boxes in an accreditation exercise. It MAY prove to be an efficient way of storing data we either already collect or wish to collect.

The ease of use comments all had to do with the various problems respondents had with using REAL. They did not like the software interface and thought it was too complicated. "It is far too complicated and time consuming for the simple output that it delivers. The same results could be accomplished with a far less involved system." Respondents also stated that restricted access kept them from using REAL.

Trialability comments addressed the opportunity to try out REAL. Visible actions comments either related to being influenced by what their peers thought about REAL or getting results from REAL that mattered to them. Following are two pointed responses about the influence of peers. I would use REAL:

- "if I hear from others in our department that it is useful and know the reasons why it would be"
- "if there were a critical mass of faculty around me that really believed that it was a good thing."

Interviews

Answers to Interview Questions

Table 19 illustrates the questions that were asked of the nine participants, as well as who answered them. The Director of Assessment was interviewed twice. The ninth question was developed during the interview process and so was not asked of all the

Table 19

Interview Participants and Questions

Participants	Question
N = 9	1. How was REAL introduced to you?
N = 9	2. Do you have a clear understanding of the purpose of REAL?
N = 9	3. What support did you get to implement REAL?
N = 9	4. Was collaboration involved in implementing REAL?
N = 9	5. Why did you decide to use REAL?
N = 9	6. How have you used REAL?
N = 9	7. Do you know how REAL has affected learning across the campus?
N = 6	8. What could be/could have been done to improve the introduction of REAL on the MSU campus?
Director of Assessment only in a pre-interview	9. What is the history of REAL?

participants (n = 6). The following section summarizes the answers to Questions One through Eight. Question Nine is answered in the Research Question section at the end of this chapter.

How was REAL introduced to you? The Director of Assessment used a database similar to REAL at a prior institution and brought the idea and the permission to use to WMU. Seven of the eight participants (other than the Director of Assessment) indicated that REAL was introduced to them by the Director of Assessment in the context of a committee meeting or faculty presentation. The eighth participant was introduced to REAL by the Associate Dean of his College who served on the AAC.

Do you have a clear understanding of the purpose of REAL? All nine participants expressed an understanding of the purpose. Table 20 presents the purposes that were reported and the number of individuals who reported them. Accreditation and improvement were the two most frequently reported purposes and learning was one of the least reported. Three participants stated they had originally thought REAL was developed only for the accreditation site visit by the Higher Learning Commission in 2004 and viewed it as a "one shot deal." One of these participants still questioned why the University was continuing to use REAL.

Table 20

Reported Purposes of REAL

Purpose	**# of Individuals Reporting (n = 9)**
Accreditation	7
Improvement	6
Creating a System for Assessment	4
Transparency/External Accountability	4
Measuring Performance	4
Program Review	3
Strategic Planning	2
Learning	2
Annual Reports	1

What support did you get to implement REAL? Table 21 presents the types of support that were reported and the number of individuals who reported them. Senior administrative support and assistance from the Director of Assessment were the most frequently reported types of support. Senior administrative support included the creation

Table 21

Support for REAL

Support	# of Individuals Reporting (n = 9)
Senior administration support	7
Assistance from Director of Assessment	6
IT infrastructure & personnel for REAL	3
Funds for online surveys	1
Release time	1
Opportunity to do related research	1
Consultant for training	1

of the Director of Assessment position, the Provost getting Deans to choose assessment coordinators for the Academic Programs Assessment & Improvement Committee (AAC), and the encouragement of various supervisors. Assistance from the Director of Assessment included presentations at faculty and AAC meetings, actual training from the Director, and his constant availability for any questions and problems.

A consistent theme in these responses was that REAL was added to their job responsibilities without the addition of resources. One interviewee reported that their state had experienced very limited funding for higher education in recent years, and MSU had the lowest administrative costs of any institution in the state. Another interviewee stated that departments were supposed to provide their own support for REAL.

Was collaboration involved in implementing REAL? Table 22 illustrates with whom the participants collaborated in their REAL work. They primarily collaborated with the Director of Assessment and the AAC, the individuals charged with developing and implementing REAL. The Best Practices indicated here is a continually expanding

list of assessment practices that the AAC selected from the department assessment plans using standardized criteria. These were posted in REAL as models for other departments. The last item in Table 22 refers to the fact that another university was implementing a modification of REAL and sharing information with WMU about it.

Table 22

Collaborative Leadership for REAL

Collaborations	**# of Individuals Reporting (n = 9)**
With the AAC	5
With Director of Assessment	3
With Deans and/Provost	3
With other departments in College	3
With the SAAC	2
Within own department	2
Across MSU by sharing Best Practices	1
With another university using REAL	1

A consistent theme in the responses to this question was the difficulty of collaborating outside of the department units for implementing REAL. According to the culture at WMU, college business is conducted at the department level. One interviewee stated,

> Yeah, we had a Dean who's gone now, but he very much pushed everything to the department level. Very little is done at the college level and so our mentality grew in our departments to be very individualistic and it still exists on many things, and this includes that (REAL).

Another interviewee stated, "If I ever mention it (REAL) to anybody in other departments, all they do is kind of groan and throw up their hands."

Why did you decide to use REAL? Eight of the nine participants indicated that there was clearly not a choice in this matter. The University did not have an assessment system in 2002 and one needed to be in place for the upcoming accreditation site visit by the Higher Learning Commission in 2004. The new Director of Assessment brought a potential system with him with which he was very familiar. He was supported in this by the Provost and deans and so the system was adopted. One interviewee so expressed the compulsory aspect of adopting REAL:

> So absent something else, you know, some other approach and absent anything coming from the colleges and the departments, you're left with looking at REAL and saying, jeepers, we ought to be using this because we don't have anything else . . . we can modify it to fit what we want . . . so why should we go through all the aches and pains of trying to produce a system of our own when in fact, no matter what we do, it probably will not be much better than REAL. We'll be looking at something that looks just similar or very much like it.

How have you used REAL? Although the question called for ways that REAL had already been used by the participants, the answers also included potential uses. As illustrated in Table 23, the most frequently reported uses of REAL were accreditation documentation and program review. Accreditation primarily referred to the accreditation site visit by the Higher Learning Commission in 2004, the event for which the Director of Assessment was hired. The incorporation of REAL into the program review process was a recent change (2005-06), directed by the Vice Provost of Faculty Affairs. Data entered into REAL by programs automatically went into the documentation required for program

Table 23

Uses for REAL

Uses	**# of Individuals Reporting (n = 9)**
Accreditation	5
Program Review	5
Organizational Learning	3
Improving Faculty Learning	(3)
Improving Student Learning	(2)
Curriculum Revision/ Changing Culture so Faculty Collectively Own the Curriculum	(2)
Faculty Research Projects/ Measuring Impact of Research & Service	(2)
For Administrators	2
Assessment Plans & Reports	2
Marketing on Public Site	2
Reporting to Agencies	2
Peer Review of Assessment Plans by AAC	1
Best Practices (list of examples of good assessment)	1
Professional Development for Faculty	1
Classification System for Program Quality	1
Transparency for Public	1
Teaching Tool	1
Strategic Planning	1
Development of Policy	1
Model for Other Institutions	1

review. Using REAL for the University Strategic Plan was also a recent event with the development of the 2006-2015 Strategic Plan, *Setting the Standard for the 21st Century* (Colorado State University, 2005). The Director of Assessment hoped that such efforts to incorporate REAL into policy would get the attention of University leadership and so facilitate the diffusion of assessment.

Three individuals reported that REAL was used for "organizational learning." Although only one individual used that terminology, the uses reported match the definition of organizational learning. According to Bok (2006), learning organizations "engage in an ongoing process of improvement by constantly evaluating their performance, identifying problems, trying various remedies, measuring their success, discarding those that do not work, and incorporating those that do" (p. 316). He claims that universities do not commonly use assessment evidence to measure the achievement of program goals, to improve teaching, to revise the curriculum or to solve campus problems. Improving faculty learning was the most commonly cited use, followed by an equivalent frequency for improving student learning, curriculum revision and faculty research projects.

Two individuals reported that REAL was used for assessment plans and reports, for marketing on the public REAL site and for reporting to various agencies. Regarding marketing, there was a public REAL site http://improvement.colostate.edu/viewall.cfm, Planning for Improvement and Change that was accessible to the outside world. Examples of student learning and other improvements were posted there, and they could be used by potential students and parents to make decisions about attending MSU. The state in which MSU resides has a voucher system where students are given a set amount of money that they can apply to any college of university, public or private. Thus, higher education institutions are forced into a highly competitive mode and evidence of student learning is a good marketing tool. Two individuals also reported that REAL was only done to please administrators. One of these individuals stated that using rubrics to

evaluate students was merely "bean counting" and that the numbers resulting from the rubrics did not adequately reflect their performance.

Three of these uses were related to the work of the AAC, peer review of assessment plans, best practices and professional development of faculty. The committee members annually reviewed the assessment plans submitted into REAL by the academic programs. The plans were assigned the designation of "underdeveloped," "well developed" or "best practices." Recommendations were provided for improvement to the "underdeveloped" plans, and the "best practices" plans were posted on REAL for campus members to view. This review thus led to improving assessment plans and providing the "best practices" as models for improvement. The process of reviewing plans also resulted in faculty development for the committee members; they learned how to develop and implement assessment plans and took this skill back to their respective colleges.

Beyond the simple three category classification system for assessment plans, the Director of Assessment recently identified 18 indicators that would be used to assess the quality of planning and evaluation in REAL. According to the Director,

> It tells a department how much measuring its doing, how wide its research (assessment) is. It also asks the range of its improvements and the number of them. It also tells them if they've got diagnostic capacity, meaning if they are using research findings that show strengths and weaknesses.

It included whether research was direct/indirect, type (juried, internship, etc), number of assessment instruments, how often they measured, number of outcomes, and number and type of improvements. It was searchable by department and could be aggregated to the entire institution.

Transparency on the public site was related to the previous discussion about marketing. The recent Spellings report (U.S. Department of Education, 2006b) demands that the performance of higher education institutions, such as the success of student learning and accreditation reports, be open (or "transparent") to public scrutiny so that anyone can make decisions about the quality of education that is being provided. The data presented at MSU's public REAL site allowed for this type of transparency.

One faculty member indicated that he used REAL as a tool for teaching graduate students how to do assessment. Other faculty members indicated that REAL facilitated the measurement of factors that would be used for tracking the progress of the University strategic plan as well as facilitating the development and implementation of other campus policies. Finally, another faculty member indicated that she had used REAL to help another university system develop an assessment process.

Do you know how REAL has affected learning across the campus? Table 24 summarizes the responses to this question about learning. The Director of Assessment unequivocally stated that he could measure the impact of REAL across the campus by counting the number of improvements provided in assessment plans as well as the number of targets (performance levels) that had been raised over time. As he stated, that is what REAL is designed to do. Although the participants found it difficult to link REAL with greater learning, they did talk about its impact in terms of improvement or change.

An interesting finding here was more than one half of the participants (n = 5) reported seeing some impact on other programs, but a similar number (n = 4) did not

Table 24

Answers and Frequencies for the Question, "Has REAL Affected Learning?"

Types of Impact	# of Individuals Reporting (n = 9)*
Yes, across the campus	1
• Based on higher # improvements & higher # targets	
Can see the potential	5
• Through best practices & strategic planning	
• By using benchmarks for learning	
In other programs	
Yes	5
No	1
Do not know	1
In my program	
No	4
Yes	1
Do not know	1

*Categories are not mutually exclusive: an individual can be represented in more than one category.

report any impact on their own programs. There was a sense that other programs were using assessment to make improvements but that their own program was not using REAL to make a difference. In fact, only one interviewee reported that REAL was definitely having an impact on her own program. "So within our own college, I would say, you know, it's definitely happening, and we're getting better linkage between what's provided by REAL and what's actually happening in the classroom."

The participants expressed various frustrations with getting their program and/or college involved with REAL. One interviewee stated that only a few faculty members at his college do the assessment plans, circulate them and then move on to other faculty work. Another interviewee expressed his disappointment that his department had only

used REAL to get more resources and changes in faculty assignments rather than improve learning. Two participants stated that even having an identified assessment leader at their colleges had not increased the use of REAL.

A number of reasons were presented for the failure of REAL buy-in across campus (see Table 25). One, assessment was viewed as making the work of professors harder, creating another layer of evaluation, and using multiple evaluators rather than just the instructor. Two, REAL was not viewed as a useful system; it was not a tool for improvement. Furthermore, faculty did not need REAL, because they already knew they were doing a good job. Third, faculty members were uncomfortable with being evaluated by another person and saw it as an "invasion of their rights." Fourth, assessment was not viewed as a valuable activity for faculty. Faculty members were not held accountable for doing assessment in the promotion and tenure process, even if they were assigned to enter plans into REAL.

Other reasons included REAL being introduced in a crisis management mode for an accreditation site visit and not using it enough to remember how to do it. At one MSU college, only one person was responsible for all of the college's assessment plans. An interviewee questioned how those faculty members could possibly be engaged in assessment. At another professional college, the faculty members thought that assessment was only for education programs, but not for their professional program!

What could be/could have been done to improve the introduction and diffusion of REAL on the MSU campus? Table 26 summarizes how the participants would introduce REAL differently. Note that only six individuals were asked this question.

Table 25

Reason for Lack of Faculty Buy-In with REAL

Purpose	**# of Individuals Reporting (n = 9)**
Makes the work of faculty harder	2
• Another layer of evaluation	
• Need multiple evaluators instead of one	
Not viewed as a useful system	2
• Not viewed as a tool for improvement	
• Faculty know they are doing a good job already without REAL	
Evaluation not viewed favorably by faculty	1
• Discomfort with being evaluated	
• View as an invasion of their rights	
REAL is not viewed as a valuable activity	1
• Faculty not held accountable for doing REAL in P&T process	
Introduced in crisis mode (accreditation)	1
Do not use often enough to remember how	1
Not enough people at a college responsible for REAL	1
REAL is only for education programs (not professional)	1

Their responses are grouped into two categories, changing ways of thinking and changing implementation strategies. Regarding ways of thinking, one interviewee stated that faculty have "to come out of their discipline caves" and think as a "community." Rather than thinking as one instructor in his/her classroom, they needed to think collectively about how to use assessment to improve the curriculum and student learning. Another interviewee stressed that assessment needs to be viewed as a valuable activity by the institution in order to engage faculty.

Table 26

How to Introduce REAL Differently

Method	# of Individuals Reporting (n = 6)
Changing Ways of Thinking	
Think collectively	1
Assessment needs to be valued	1
Changing Implementation Strategies	
Start slow, pilot some projects and see results	2
Upper administration buy-in	1
Involve faculty governance	1
Assign dept. leaders with release time and funds	1
Show only pertinent parts of REAL rather than the whole (too overwhelming)	1

Regarding different implementation methods for REAL, two participants indicated that the process should move more slowly, using the success of pilot projects to encourage buy-in for assessment. Buy-in by upper administration, involving faculty governance, and assigning department leaders with release time and funds were all strategies suggested by one interviewee. Finally, one interviewee indicated that seeing REAL as a whole was too complex and overwhelming for a first time user. In their orientation, users should only see the parts of REAL that they would need to use.

Analysis of Interview Findings

The frequency distribution of the interview data within the major categories is illustrated in Table 27. In order of decreasing frequency, voluntariness, senior administrative support, compatibility with campus culture and visible actions were the four most frequently occurring categories. This next section will describe the interviewee results for each of the ten categories.

Table 27

Frequency Distribution of Interview Data Within the Major Coding Categories

Category	Frequency in Interviews
Voluntariness	75
Senior Administrative Support	75
Compatibility with Campus Culture	59
Visible Actions	55
Flexible Vision	48
Collaborative Leadership	38
Staff Development	33
Ease of Use	29
Relative Advantage	27
Image	26
Total	**465**

Voluntariness

Voluntariness was defined as the ways in which REAL was either required or not required. Table 28 illustrates the frequency distribution of the categories within voluntariness. Only 6 of the 75 items presented a voluntary nature for REAL; all of the other items referred to some type of mandate. These voluntary comments included: (a) a specialized accreditation process not using REAL data, (b) the promotion and tenure process not considering the REAL responsibilities of faculty, (c) choosing REAL as a University database as well as its content, and (d) a faculty member volunteering to enter data into REAL.

In the non-voluntary comments, accreditation primarily refers to the site visit of the Higher Learning Commission in 2004, although there were a few comments about

Table 28

Frequency of Coding Categories in "Voluntariness"

Category	Frequency in Interviews
Not Voluntary	
Accreditation	34
Other Mandates	16
Program Review	9
Accountability	8
Strategic Plan	2
Voluntary	6
Total	**75**

specialized accreditation. As one MSU administrator described the role of REAL in accreditation, "So when a site team comes to visit that program, they're going to say, 'Show me evidence that students are learning this outcome.'" The following quote presents the non-voluntary relationship between REAL and accreditation at MSU.

> So in reality it was primarily an external mandate that forced the university to have to pay attention and emphasize development of an assessment program and then specifically REAL versus any other kind of model, that was left to the Director of Assessment to develop and implement what he could persuasively convince the faculty and the assessment coordinators was the best model that fit here.

"Other mandates" refers to several comments, including "no choice," "not going away," "REAL is a check list for administrators," and "rubrics were imposed on us." The following comment illustrates this perspective.

> We're at the point now, as by the way many units are on this campus, of viewing REAL as something to just get off our backs, so to speak. And to just get it over with and get something down so nobody's pestering you on wanting more. And that's not going to work. REAL won't work if it's viewed that way, either collectively or individually. And it won't work for people to think that way because REAL is a cyclical system that demands information at fairly regular

> calendar data points—at points in the calendar throughout the academic year. And so just as you get somebody off your back, get the Director of Assessment off your back in October, he's going to be right back there again in January.

"Accountability" was the term actually used by a number of participants. It also includes required reporting to various agencies. "Program review" referred to the required evaluation that each University program must undergo every six years; REAL data was needed to complete the necessary documentation. Regarding "strategic plan," REAL data had also been integrated into the targets for learning within the MSU plan.

Senior Administrative Support

This category was defined as types of support provided by senior administrators to encourage adoption of REAL or lack thereof. Table 29 illustrates the frequency of categories within "senior administrative support." One of the participants stressed the importance of such support.

> But it definitely depends on the leadership. And – because if either the person responsible for assessment in the unit or the unit head doesn't value it and pay attention to it, it's not used for anything, and the faculty just think it's one more piece of busywork they have to do.

Assistance from the Director of Assessment was the most frequently mentioned category, followed by support from various senior administrators. "Creating the Director of Assessment position" was also a related category. The Director of Assessment so described his role to facilitate the faculty:

> So if your department is going through a program review, not only will we sit down and go through ahead of time with you what the process is and that kind of thing, then we'll assign a coach to work with you throughout the process so that if you've got questions, because most people would rather get a root canal than go through a program review. But anyway, we try to make it a painless process as much as we can. And so that's a big agenda item.

Table 29

Frequency of Coding Categories in "Senior Administrative Support"

Category	Frequency in Interviews
Support	
Assistance from Director of Assessment	19
Support from VPs, Provost, Deans & Assoc Deans	15
Creating Policy Supporting REAL	8
Creating Director of Assessment Position	6
Funding for REAL Work (have it or don't need it)	6
Release Time (have time or saying why is important)	4
Technical Support (have it)	3
Hiring Other Assessment Leaders	2
Lack of Support	
Lack of Support	6
• Deans not involved	(3)
Administrative Turnover	6
Total	**75**

As another administrator succinctly stated,

> And that's why I'm very supportive of this whole, you know, having a director, having somebody who's involved in REAL, having somebody who is, you know, essentially carrying the banner for assessment, and I think that he needs all the support he can get, publicly and financially. I mean, you know, politically and financially from the Provost's office.

"Creating policy supporting REAL" involved requiring REAL for other campus practices, such as program review and reporting progress on the strategic plan. One participant explained how policy might affect the use of REAL for strategic planning.

> We need to start getting Deans' support and admonitions, if you will, to the departments to start utilizing REAL, especially if the Deans are going to be in a position where they have to report achievements toward the strategic plan. If people aren't using REAL, then they're going to have to work their tails off, you

> know, when the Dean says, "Hey, I need this stuff because the Provost is asking me for it."

Funding for REAL work, release time and technical support were supports that were either already in place or indicated as important for the success of REAL. The final senior administrative support category was the hiring of other campus assessment leaders, specifically a director for a teaching and learning center and an assessment dean for one college.

Both "lack of support" and "administrative turnover" reflected a lack of senior administrative support. Three participants stated that the Deans were not very involved in assessment with REAL. As one stated, "So if you've got the Department of Education saying it and the State saying it and your Board saying it, the only people who really haven't got saying it in my view are the Deans. And they're in a little bit of a gap there." Another interviewee indicated that a faculty shortage at MSU contributed to a lack of commitment to REAL. Finally, another interviewee addressed administrative turnover. "Administrative turnover is the main barrier for efficiency in higher education. And so this system is developed to try and work around that or at least to cope with it."

Compatibility with Campus Culture

This category was defined as ways in which REAL is or is not compatible with how faculty work, faculty culture and campus practices. Table 30 presents the compatibility category that emerged from the interviews. The only clearly positive comments about the compatibility of REAL with MSU were about facilitating program review and specialized accreditation, monitoring the strategic plan, integrating with capstone courses and REAL being used at other campuses. By far the most frequent issue

Table 30

Frequency of Coding Categories in "Compatibility"

Category	Frequency in Interviews
Compatible	
Compatible with Campus Practices	4
Used at Other Campuses	2
Incompatible	
Incompatible With Faculty Culture	22
Incompatible With Campus Culture	18
Faculty Buy In	13
Total	**59**

was the lack of compatibility between using REAL and MSU culture. In addition to the incompatibilities with faculty and campus culture, most of the suggestions for achieving faculty buy-in for REAL directly stated or implied that buy-in had not taken place.

The incompatibilities with faculty culture included the following. Faculty:

- Felt they are already doing assessment and were good at it.
- Did not need improvement.
- Wanted to do their own thing.
- Did not want to be evaluated.
- Wanted to do research, not assessment, because assessment was not valued.
- Felt that REAL was an activity they had to do for the administration, not for improvement.
- Did not want to deal with the dreary details of REAL/assessment.

The incompatibilities with campus culture included the following.

- MSU did not have a culture of change based on assessment.
- Department mentality was pervasive and was not compatible with the collective orientation needed to take responsibility for campus learning and improvement.
- REAL would go away like all other trends on campus even though it had been there since 2002.

Visible Actions

This category was defined as ways in which REAL and its impact could be observed or not. Table 31 illustrates the visible actions that were described and their frequency. One of the participants described how REAL facilitated visible actions. "And the whole system of REAL, too, what's great about it is it captures information over time, it holds people accountable, it allows people to see programmatic shifts and changes, and, you know, hopefully identify units or areas that tend to get stuck in a rut." Along a similar vein, another interviewee said, "It's a way that people can kind of visualize assessment in the components that are important without having to figure it out on their own, because it's all right there in front of them."

The "learning and curriculum" were primarily examples of how assessment through REAL had resulted in course changes, such as eliminating "professor passion" courses (electives designed by professors) that were not effective for learning or the creation of rubrics that had/could improve public speaking and research projects. The Director of Assessment indicated that REAL illustrated the 563 learning outcomes that

Table 31

Frequency of Coding Categories in "Visible Actions"

Category	Frequency in Interviews
Visible	
Learning & Curriculum	13
Evidence	10
Tracking Change	8
Transparency	6
Improvement	5
Modeling	3
Judging Assessment Quality	2
Miscellaneous	1
Not Visible	
Lack of Visibility	7
Total	**55**

were being assessed across the campus. "Evidence" referred to visible actions that assessment/REAL was in place at MSU. Examples included the following evidence: (a) 174 assessment plans were in place; (b) hard data were available and was being used for decision making; (c) there was documentation of faculty dialogues about assessment; and, (d) department notebooks were available as artifacts of assessment.

"Tracking change" comments referred to measuring goal achievement and change and tracking it over time. "Closing the loop" was also included here. Transparency comments related to multiple constituents being able to see the REAL information, both by campus members and the public. "Improvements" related to actual discussions of improvements. The Director of Assessment indicated that 205 campus improvements were documented in REAL. "Modeling" refers to comments about learning from and

using the assessment practices of other College units and also sharing them with other institutions. “Judging assessment quality” was the category for discussions as to how REAL facilitated judgment about the quality of campus assessment.

Regarding “lack of visibility,” five participants indicated that they could not see the impact of REAL on their college or the campus. The responses included “no effect,” “no impact,” “not aware of improvement” and “not looked at or talked about.” The other two comments were that metrics were needed as well as test cases.

Flexible Vision

Flexible vision was defined as descriptions of what REAL has achieved or will achieve for the campus. Table 32 demonstrates the frequency of flexible vision categories that described what REAL had achieved or would achieve for the campus. “Systematic assessment” was the term mentioned most frequently, indicating assessment would be comprehensive across the campus and continuous rather than episodic. In contrast, assessment is primarily done right before a site visit and then dropped soon after at many universities. “Student learning and curriculum revision” were the next most frequent common terms used to describe REAL. Measuring learning, improving learning and redesigning the curriculum were examples from the discussions. Regarding “effectiveness and improvement,” those terms were used, as well as “continuous improvement,” “closing the loop,” self-improvement” and the “power to get better.”

“Organizational performance” refers to the potential for REAL to measure and improve the institution. As one interviewee stated, they needed “to recognize its inherent

Table 32

Frequency of Categories in "Flexible Vision"

Categories	**Frequency in Interviews**
Systematic Assessment	12
Student Learning & Curriculum Revision	8
Effectiveness & Improvement	8
Organization Performance (including planning, customer service, program review)	7
Transparency/Marketing	6
The Dream (of the Director of Assessment)	5
Miscellaneous	2
Total	**48**

power in making our annual efforts to get better, to move strategically in the directions we need to go, to respond strategically and efficiently to outside accreditation agencies and inside accrediting processes." Another interviewee talked about the long term vision for REAL to improve MSU.

> We have specialized accreditation in a number of programs in the university. We have every six or seven years departmental reviews where that department program has a self-study and a report and outside analysis and review of the strengths and weaknesses and the opportunities for improvement and change in the program. But we couldn't measure the impact of any of those processes and record and document where they'd resulted in change or resource allocation. And so the purpose of REAL in the short term was just to meet the requirements of accreditation. But the longer term vision is to make it a useful tool to provide the capacity for the institution to continually assess its performance and continue to make adjustments in direction and management that would result in improvement.

Continuing with organizational performance, the Director of Assessment talked about the need for faculty to think beyond their individual courses and collectively work to improve the organization.

> If you do the process well, if you do good student learning research and you present data in effective ways, I think learning has to improve. What it does is it makes them reflect more and it gives them data to self-reflect with. And it encourages group-ism or community and they start thinking about, well, it's not just my class. We've got to get together as five people in this program and figure out how to improve as a group. That's new stuff for higher education. You know, how do you get faculty to come out of their discipline cave and stop assuming that learning is taking place?

"Transparency" and "Marketing" refer to the potential of REAL to make assessment results visible to many audiences and used for student recruitment. "The Dream" refers to the vision that the Director of Assessment had for REAL and its impact on MSU. The REAL descriptions provided by the participants suggest that the Director of Assessment had conveyed his dream well and that these individuals had a good sense of the capabilities of the system. They also understood the importance of having such an assessment system in the context of the current higher education environment.

Collaborative Leadership

Collaborative leadership was defined as the types of collaboration among campus leaders that occurred to facilitate the adoption of REAL or did not occur. As illustrated in Table 33, interaction with members of the AAC was clearly the most frequent type of collaboration. This was probably due to the leadership role these participants played in the implementation and maintenance of REAL. Collaborations with the Director of Assessment, the leader of assessment activities, make similar sense.

Despite the 28 campus collaborations discussed and five with external institutions, the comments about lack of collaboration (n = 5) were fairly compelling. One interviewee discussed his/her frustration with the lack of collaboration within a college.

Table 33

Frequency of Categories in "Collaborative Leadership"

Categories	Frequency in Interviews
Collaboration	
With AAC (1 w SAAC, Student Affairs Assessment Committee)	16
Within a College	6
With Another College, University (2) or Corporation (1)	5
With Director of Assessment	3
With Deans and/or Vice Presidents	2
Within a Department	1
Lack of Collaboration	
With Deans and/or Vice Presidents	1
Within College	1
Within a Department	1
Other	2
Total	**38**

> Some of the faculty members in the department have collaborated to a greater or lesser extent in terms of putting data in, but one of the things that's really hard about it is getting anybody to collaborate or cooperate. . . . If I ever mention it to anybody in other departments, all they do is kind of groan and throw up their hands. You know, they feel like the same way I do about it, I guess.

Collaboration with Deans and/or Vice Presidents was only mentioned twice in the interviews. One senior administrator stressed this lack of collaboration in the upper administration level.

> You know, I—I think the level of awareness is minimal with the Deans and consequently, I don't see them collaborating. I think that the kind of measures we're talking about don't fit at the VP level. So I don't see much collaboration up there, either. . . . We need to start getting Deans' support and admonitions, if you will, to the departments to start utilizing REAL, especially if the Deans are going to be in a position where they have to report achievements toward the strategic plan. If people aren't using REAL, then they're going to have to work their tails off, you know, when the Dean says, "Hey, I need this stuff because the Provost is

> asking me for it. . . .” So, you know, I think it’s a matter of trying to get people to realize the value of it. I think some do and some just haven’t been paying any attention to it.

Staff Development

This category was defined as education and training efforts to assist campus personnel in learning the purpose of REAL and how to use it or lack thereof. As illustrated in Table 34, staff development was primarily viewed as coming from the Director of Assessment. This included presentations at meetings, hands on demonstrations and assistance upon demand. The other major source of training was the AAC, either by membership on it or contact with these individuals in their appropriate colleges.

Table 34

Frequency of Coding Categories in “Staff Development”

Category	Frequency in Interviews
Development	
By Director of Assessment	17
By AAC	5
Other Training (miscellaneous)	5
Lack of Development	6
Total	**33**

The need for more training was emphasized. One interviewee described the lack of understanding about assessment that pervades his college as well as the campus as a whole.

> And, you know, to be frank, in some ways they're right in that the _____ curriculum changes regularly, because we are always tweaking it to improve it. We're just not very good at formally going through a process that REAL encourages you to be systematic about it. We tend to more go on intuition and feedback we're getting. You know, we hear about national trends and we move, but it—it tends to be more content driven than assessment driven.

This same interviewee described trying to educate his Dean in assessment.

> The Dean keeps coming and saying, 'Oh, we need to be able to see this stuff historically. We need to be able to save it, keep it in the report.' And every time she says something, I turn and say, 'That's what REAL does. That's what REAL does. That's what REAL does.' And I've done this on numerous occasions now. And so I've kind of brow beaten her down a little bit to understand that and she's finally coming around..

Ease of Use

This was defined as ways in which using REAL was easy or hard to do. As illustrated in Table 35, ease of use was primarily related to the benefits of an electronic medium over paper. One interviewee explained this advantage.

Table 35

Frequency of Coding Categories in "Ease of Use"

Category	Frequency in Interviews
Easy	8
Hard	
Difficulties	14
Access Limitations	7
Total	**29**

> People could have that same information in their paper files if they wanted to, but it makes it so much easier to go on and not only see yours and see the history of yours, but you can access different surveys. Other people can see your surveys or you can see theirs because of the way we do this, so it helps give people some ideas for how to ask questions or what people are looking at. So the transparency makes it not just a great database, but a good resource, so rather than keeping it in your files, it's like in everybody's electronic files.

This category was dominated by issues that illustrate difficulty rather than ease. Considering that the participants were generally those with the most REAL experience, their perception of difficulty has to be taken seriously. The term mentioned most frequently was "overwhelming" as well as "confusing," "too much jargon," "frustrating" and "cumbersome." One interviewer provides this perspective.

> It became real obvious to me that we couldn't show them everything, and all the bells and whistles, because it's just way too overwhelming. You have to sort of break it down into sections or just see the parts that are important to you as a faculty member or something at first. And I think it's just like sometimes, for ___ (Director of Assessment), it's like wanting to unveil his total family, you know, all his children, and, you know, when in fact, you know, we just have to just start with a small piece that might be important to a particular group and to sort of simplify it, because it is pretty involved.

Another interviewer provided the perspective of an external consultant who came to MSU to conduct a program review.

> An outside team came in for evaluation purposes for this six-year program review and when we tried to have them look at this program review site, which is very similar to the REAL sites, they found it very confusing and difficult to navigate and they didn't want to use it. . . . So I think that's interesting information that it's not easily accessible to outside persons. There's a fairly difficult learning curve that goes along with it, and I remember sitting in here with the music reviewer and trying to show her a little bit about how it worked, and she just kind of just threw up her hands and went, you know, I don't even want to see this.

The access limitations included the need to have a password provided by the Director of Assessment or from select individuals in their colleges. They also described restrictions on what assessment plans they could view once they were online. Within REAL, there were three levels of security. At the lowest level of security is the public site that can be visited by anyone with access to the Internet. The next level of access is for viewing plans which requires a password obtained from the Director of Assessment; viewers can see departmental plans within their college but not those of other colleges.

The highest level of security is for entering data and also requires obtaining a password from the Director of Assessment. One or more persons from a given department have this high level of access, and again, they can only work with their own departmental plans.

Relative Advantage

Relative advantage was ways in which REAL was better than prior practices or not. As shown in Table 37, whether or not REAL was viewed as having advantage was about equally divided. The primary ways that participants reported REAL stimulating improvement were integrating with other planning processes and facilitating program review. One participant stated, "REAL potentially provides a way to integrate a strategic planning process and put some meat on it and use it as a living document which is what it's expected to be but almost never is." Another stated, "And then when it comes time for their program review, all they have to do is to take the data they've collected over the past five or six years and plug it into our program review slots and then they've got the work all done." Table 36 indicates seven other specific ways that REAL facilitated improvements.

As far as the opposing viewpoint, one interviewee stated, "They (faculty in the college) don't view it as a tool to help them. I think that our college assessment coordinator does not have a good grasp of outcome assessment and is unable to sell the program to the college faculty and others." Other related comments include: (a) creates more work for faculty which has to be done on top of everything else they are doing ("add-on activity," "busy work"); and (b) faculty do not understand the assessment movement or the capacity of REAL and are not convinced of the advantage of using it.

Table 36

Frequency of Coding Categories in "Relative Advantage"

Category	Frequency in Interviews
Has Advantage	
Integrates with Other Planning	5
Makes Program Review Easier	2
Other Means for Improvement	
Easier than Specialized Accreditation	1
For Career Development (publications/consulting)	1
Tool for Improvement	1
Multiple Purposes	1
Better than Paper	1
Communicates Quality	1
Teaching Tool	1
Lacks Advantage	
Not Viewed as Means for Improvement	13
Total	**27**

Image

Image was defined as ways in which REAL improved or did not improve the image of programs or the campus. Although image concepts were the least frequently cited, they were primarily positive (Table 37). The one negative category was that the new guidelines for student assessment, specifically the need to develop grading rubrics, implied that current assessment practices were not good enough.

> What we are already doing is not good enough. It's like, well, no, this isn't real assessment unless you do it on a five-point scale and it has divided learning subcategories and those are rated and then you look at your percentages of students that are doing one or the other and then that's real assessments, but all the other things you guys do isn't really.

Table 37

Frequency of Coding Categories in "Image"

Category	Frequency in Interviews
Positive Image	
Do Not Want to Look Bad	9
Communicates Quality (5) - Improves Reputation (4)	9
Transparency (5)/ Marketing (2)	7
Negative Image	
Communicates that Current Assessment Not Good Enough	1
Total	**26**

The largest image category was faculty adopting REAL, because they did not want to look bad. Some of the specific comments were: (a) embarrassment about reports at the Deans Council that they were behind, (b) not wanting a bad accreditation report, and (c) worry about having poor assessment plans. Transparency and marketing related comments had to do with improving a College web site, providing information to the public and sharing assessment practices across the campus.

Reflecting the concepts of communicating quality and improving reputation, one interviewee stated:

> I believe that we have an opportunity to jump over a whole lot of departments in the university and actually become a leader in the way in which we use data and build our system. . . . It's hard, I think, for units, faculty and non-administrative folks to come to really believe in the power of data systems and accountability systems and how important those are for the university at large to position itself within all of the universities with which they compete.

He also spoke about an assessment project he was developing and its potential impact on the reputation of the college.

> I will be presenting one little piece of how and where I think we ought to go with a particular component of the PhD program that will be on REAL and that is a rubric that we're building that gives more consistency and validity to the way in which our faculty members, when they sit on doctoral dissertation committees, actually rate the quality of each of the chapters in a dissertation. And I'm going to go in front of our Graduate Programs Committee and explain how that will upgrade our accountability and our consistency with which we look at dissertations and dissertation proposals. And also explain to them that if we post this on REAL and use it, we'll be the only unit in the university that has such a rubric and such an accountability system and one of the few land grant colleges as near as we can tell. So it's not very hard to jump from a fairly low position to a fairly high-flying position, a fairly visible position, and still do the right thing in terms of still being accountable.

Themes in Interviews

Five themes emerged from the interviews, the dream of the Director of Assessment, incompatibility with campus culture, thinking differently, problems with the REAL infrastructure and need for a mandate.

The Dream

The dream refers to the vision that the Director of Assessment had for REAL and its impact on MSU. Several participants made reference to the Director and his dream. One of the participants actually coined REAL as his "dream child." Here is a description of the dream by the Director of Assessment.

> This assessment (REAL) wasn't going to be superficial. It wasn't going to be based on an external mandate. It wasn't going to be based on doing some testing, and I wouldn't support testing from ETS or ACT or any other national kind of distributing testing agency. These were going to be homegrown assessments, unit based, and the department and the department's faculty would decide on all the content and the planning methodology. All we were doing was working with infrastructure. In that sense, we wanted to emphasize the grassroots features of it.

The Director of Assessment brought his vision for REAL to the campus and initially sold it to the administration. He also clearly conveyed it to the participants who

were significant players in the implementation of REAL. They understood the importance of having an assessment system in the context of the current higher education environment and realized that REAL was the vehicle that could make it happen.

The extent to which REAL has been adopted at MSU has primarily rested on the shoulders of the Director of Assessment. Table 38 illustrates how often the Director of Assessment was specifically referenced in the interviews. As one interviewee stated, the Director of Assessment carried "the banner for assessment." He was the predominant source of the comments related to senior administrative support and staff development. He also created the assessment infrastructure of the AAC, primarily composed of associate deans, that was responsible for much of the senior administrative support and collaborative leadership.

Table 38

Proportion of References to the Director of Assessment in the Interviews

Category	**# Director References/Total Comments**
Senior Administrative Support	23/75
Staff Development	17/33
Vision (his vision)	6/48
Collaborative Leadership	4/38 (another 16/38 refer to the AAC, which he created)

For all practical purposes, the director was assessment at MSU. With this in mind, another interviewee raised a pertinent question, "If he leaves, will REAL go away?" As Kouzes and Posner (1995) claim, a leader must inspire a shared vision, with an emphasis on shared. Although the associate deans from the AAC seemed to buy into REAL, there

was still a need for a greater level of support from the higher administration. A number of comments where made about the Deans not being very involved in REAL. The possibility of REAL going away seemed to be a valid concern.

I asked the Director the same question, whether REAL would go away if he did. His answer indicated that, although MSU could not exist without assessment, his leaving might diminish campus assessment efforts and the use of REAL. Here was his response.

> No person is indispensable at an institution this big. If I were to leave, it would require a good bit of training for the next person to learn and manage the REAL system. Its database functionality has become sophisticated and complex, especially the programming code that runs the program review process. I cannot see how a major research university can continue to compete internationally and nationally as the search for quality continues to accelerate. Forget state accountability and regional accreditation. We are now in a global higher education market. If MSU does not systematically improve itself, if departments do not systematically increase their visibility in the discipline, other peer institutions will.

Incompatibility with Campus Culture

One participant described the role assessment should play in the campus culture at MSU. Systematic assessment

> is something that needs to become engrained into the culture of the campus and the organization that we expect it's a part of our course of doing business that we are evaluating what we do and have metrics or standards or target goals, and some means of assessing whether we're accomplishing our purposes and our mission.

Unfortunately, MSU participants indicated that a different culture existed that was incompatible with REAL.

The participants indicated trends come and go on campus and that REAL was viewed as another temporary, educational fad *du jour*. One interview expressed this view.

> And I think there was a tradition that people say, "Well, this is the current phase. It will go away." You know, at the university, every time we get a new person

> onboard, we get a new mandate and then it goes away. And so I think there was a strong element of that. In fact, that conversation came up often when I presented this to the departments because I presented it on multiple occasions. And there was a lot of, "Oh, this is just a current fad. We'll get through this accreditation, which we did several years ago, and then it will go away." And so, you know, we're just going to put up with it, whatever we have to, and not worry about it in the long run. . . . There was a sense of "We don't need this."

Faculty culture dictated that professors teach their classes and do research, with the latter most highly rewarded in terms of promotion and tenure. At best, systematic assessment with REAL was viewed as a nuisance. As one interviewee stated, "I think faculty fundamentally want to do the right thing. They want to be accountable but they don't want to do the hard work of figuring out all the kind of dreary details of systems and other types of things that are needed in order to really be accountable." At its worse, REAL work is viewed as consuming time that should be spent on scholarly activity. As another interviewee said,

> All this is doing is forcing us to do something in a different way that is causing people more work and more—more time having to do bureaucratic paperwork instead of being in the trenches teaching or performing or doing whatever we're actually supposed to be doing.

A faculty member explained his rationale for not valuing assessment:

> As things are tight in higher education, and there are more and more demands to write grants, to—you know, do all these other things in life, when it comes to assessment, it seems like it's the lowest on the totem pole. Maybe it shouldn't be that way, but I think it's because it's not valued. If it's not valued in the rewards system, then people are going to put their effort where they know they can get rewards.

Another aspect of faculty culture was academic freedom. Faculty felt they should be able to make their own decisions about how they teach and evaluate students in their own classrooms. They also believed they were already doing a good job of evaluating

student learning in their classes. One interviewee said, “The whole thing to me (REAL) seems like it’s a superimposed, it’s an extra layer of stuff that seems superfluous, that we already do in some way.” They certainly do not want anyone else evaluating them and how well they are teaching and facilitating student learning. As one faculty member stated, “To have other faculty give me feedback or input, I mean, it’s no big deal, but to some it is just is an invasion of their—you know, their rights as a faculty member.” Another participant agreed, “And so there’s a lot of faculty out there that are probably staying pretty distant from it, still probably some faculty out there that think it’s a threatening process because somehow it’s going to link to their evaluation.” So assessment as defined by the REAL system flies in the face of these beliefs.

Using REAL effectively to measure and improve student learning across campus would require collective action by faculty, outside of their individual classrooms, across their own departments and across all other departments. According to the Director of Assessment, faculty need to be “responsible for developing their curriculum at a program level, not just as a course level . . . to research the effectiveness of that curriculum, to see if it works or not.” He also talked about how faculty could collectively use REAL to improve the institution as well as their own work.

> I think the challenge for developing faculty culture is to get them to begin thinking about their department as an organization, not themselves alone. Not how many articles they can publish to get tenure, but, how do they fit into an organization or a community and how can they perform better as a community and how can they research how well they’re doing and systematically improve their publication, systematically improve the impact of their research, systematically improve the impact of their service in the community into the discipline?

Not Thinking Differently

According to Eckel and Kezar (2003), if a campus change succeeds, the individuals involved will develop new ways of thinking. In the case of MSU, the faculty would value the role of REAL in improving learning in their colleges and actively involve themselves in assessment dialogues and activities. However, MSU did not yet have this culture of change based on assessment evidence. According to the participants, faculty and administrators did not see assessment having an impact on their own departments and colleges. They did not believe that faculty viewed assessment as a means for improvement or that there was any disadvantage to *not* engaging in assessment.

Assessment was viewed by faculty as something they did for the administration, not for improvement. “They identify it as something on the checklist the administrators expect us to do, so we’ll make enough effort to get an ‘atta boy’ that we’ve got it accomplished and then we’re on to doing our own thing.” Moreover, change was often based on anecdotal information rather than assessment evidence.

Problems with REAL Infrastructure

Although the electronic medium was viewed as an advantage, learning to use REAL was repeatedly described as overwhelming and frustrating. One interviewee described trying to get his Dean to use REAL on multiple occasions, but she disliked the appearance of the screens so much that he/she would not use it. Another interviewee described the frustrating learning process with REAL.

> (The Director of Assessment) walked through the operation of the software, because there was a lot of frustration early on with certain functions that didn’t

> work as smoothly, I think, as they do now. And so it was changed, and so like the toggling back and forth between years of information or, you know, time frames wasn't there to begin with, and the cut-and-paste function, I think, didn't work as well. So there were some things that people would get it all done, and then they'd push the wrong button or they'd do something, and that was frustrating.

Another interviewee described her experience with using REAL for a program review.

> Just looking at it as an average liberal arts kind of professor, it looks like a lot of data crunching and a lot of bureaucratese kind of thing . . . I got to the point towards the end of this program review thing where I would just be sending him (Director of Assessment) stuff every day. I would say, "Would you please translate this into everyday English?

A related issue was getting access to assessment plans. Other than the public site where some example plans could be viewed, a password was needed to view material in REAL. The password was only available from the Director of Assessment and the AAC member from a given College. Even with this password, faculty could only view plans from their own college. The exception to this was the list of Best Practices that included examples from many different colleges and was available to anyone having internet access to MSU's web page.

Mandate for REAL

The interviews clearly indicated that using REAL was considered a mandate, whether in the context of accreditation, program review, strategic planning or other reporting requirements. Is that good or bad in terms of adopting this innovation? According to Rogers (2003), adoption happens most quickly when it is mandated. However, individuals may find ways to circumvent adoption, if they do not agree with it. This appears to have been the case at MSU. One hundred and sixty nine assessment plans

were posted on REAL in a three month time period when accreditation was looming. However, the process languished after a successful site visit.

The administration was continuing to implement policies that mandated using REAL, particularly program review. According to the Director of Assessment, this was the strategy they were going to use to insure that REAL was widely implemented. Whether this will result in faculty seeing the value of REAL remains to be seen.

Answering Research Questions

Research Question 1. How did one campus, MSU, implement the assessment innovation REAL?

Table 39 identifies the major sequence of events that occurred in the implementation of REAL at MSU. In the spring of 2002, the Provost initiated a search for a Director of Assessment. This was a new position at the University that would operate out of the Office of the Provost. This individual would lead the University in initially establishing an assessment process for the accreditation site visit by the Higher Learning Commission and then continue. The individual they hired already had experience in higher education assessment and brought the framework for an electronic system, including the computer programming code.

Within a month, the Director created an assessment peer review committee primarily composed of academic deans from the eight colleges (n = 9). As the academic leaders, they became the assessment resource persons at their colleges. The committee had a two-fold purpose to:

Table 39

*Sequence of Events for the Implementation of REAL and their Significance**

Time	Event	Significance
Spring 2002	Provost created the new position- Director of Assessment	Accreditation by the Higher Learning Commission scheduled for February 2004. MSU never before had a full-time assessment leader.
October 2002	Hired experienced Director	Brought the idea for REAL with him as well as the programming code
October 2002	Created a peer review assessment committee primarily composed of academic associate deans (AAC, n = 9).	They served as assessment leaders at their eight colleges. They developed: • a schedule for assessment reporting (every semester) • format for plans • process for reviewing plans with a rubric
October 2002	Provost charged all programs to develop assessment plans in REAL through the Council of Deans	Deans would deliver this message to their Colleges and associated departments
October -December 2002	Training and presentations to department heads by Director (organized by Deans, not presented to general faculty)	Department heads knew the importance of the assessment plans and how to work with REAL
December 2002	REAL software went online	Went up quickly because of experienced new Director and help from a computer science student worker
December 2002 - Jan 2003	All 54 departments posted 169 program plans in REAL	Highly motivated by Provost to get this completed. They were also given enough guidance to get this done.
Fall 2002-Winter 2004	Development of REAL website with sample plans, evaluation instruments and "best practices"	Provided guidelines to get the process started, templates for plan development and online help buttons for all planning components
Spring 2003, Fall 2003 & Spring 2004	Completed 2 assessment cycles and into a 3rd by the HLC site visit	Provided evidence of history of assessment as well as demonstrated improvement in planning & assessment
February 2004	Higher Learning Commission site visit	Positive review of assessment standard and process
Fall 2004	Went to an annual assessment cycle	Assessment process began to languish in some departments. Not all programs continued.

Table 39 continues

Time	Event	Significance
July 2004	Development of public site "Planning for Improvement & Change"	Created "transparency" about student learning as dictated by the Spellings Commission (Schray, 2006)
2005-2006	Pilot year for integrating REAL with a new Program Review process	Program review was required. Made doing assessment part of University policy. There were 20-30 program reviews a year for 169 programs.
April 2005	Integrated REAL with the University Strategic Plan	Linked REAL to achieving University goals for teaching and learning.
February & June 2005 May 2007	REAL adopted by MSU Pueblo (February 2005), UNL (June 2005), and Great Plains Interactive Distance Learning Alliance (May 2007)	REAL was/is a model for implementing organizational learning systems in higher education
Spring 2007	AAC changed to the Leadership Council	Charge has broadened beyond program assessment to include program review and strategic planning. Composed of 2 academic associate deans and 7 faculty members.
Fall 2007	Trying to hiring a full time database person rather than 2 student workers on the job	More resources are needed by the Director for REAL development and maintenance

*Data primarily from an interview with the Director of Assessment but supported by the interviews with the other faculty and administrators (n = 8). This table was reviewed by the Director of Assessment for content accuracy.

1. Peer review assessment plans and advise the Director on the assessment process.
2. Assist the University in preparing the self-study for the Higher Learning Commission.

They named their committee the Academic Programs Assessment and Improvement Committee (AAC) and developed the format for REAL assessment plans and reports. The AAC created a rubric to review plans and classify plan components as either "underdeveloped," "developed" or "best practices." The intent was to make examples of best practices available to all the University in REAL.

Initially, the departments/programs (n = 169) posted an assessment plan for review. The committee members reviewed all the plans in small groups, categorized the development of the plans and provided feedback on how to improve them. This review was posted in REAL so the departments could improve the plans in a given time period. At the end of the semester, the departments reported on the results of the assessment plans as well as developed plans for the next semester. Then the AAC repeated the cycle of review and posting feedback for improvement.

In addition to educating the AAC members, the Director conducted training sessions for department chairs upon request of the college deans. Individuals were designated as the REAL data entry person(s) within each department and these were trained by the college AAC member or the Director upon request. The Provost dictated that plans be done and all 169 plans were posted by January 2004.

Two and one-half cycles of the AAC review process were completed by the accreditation site visit (February 2004), spring 2003, fall 2003 and the beginning of spring 2004. According to the Director, the plans greatly improved over this time period with AAC feedback. The departments were able to build on the capstones courses that had already been developed at their campus, incorporating student capstone projects into the plans as evidence of learning. They also began using numerical rubrics to measure student performance.

The assessment process received a favorable review at the HLC accreditation site visit. The REAL cycle then changed to an annual one to make it more manageable. Plans

were posted in September/October, as well as the results from the prior year plan, and then reviewed by the AAC

According to the Director, the process began to languish somewhat after the site visit without a mandate for departments to participate. However, REAL was then incorporated into two other campus policies/practices which helped insure its continuation. He and his supervisor, the Vice Provost for Faculty Affairs, decided to integrate REAL with the Program Review process at the University in 2005. This was a required review for all programs every six years. The self-study for program review was online, and REAL assessment plans automatically embedded into the self-study materials. Since there were 169 campus programs, there were about 20-30 program reviews a year.

REAL was also integrated into campus strategic planning in 2005. Some of the University goals required evidence of student learning, and REAL was specifically cited as the means to generate the appropriate data. The College Deans were responsible to the President for generating the REAL data needed for this plan.

In response to the public demands for transparency about student learning, the Director created a public website for REAL entitled "Planning for Improvement & Change." There he posted example materials for the public to review. As well as creating transparency for the various stakeholders of the University, the assessment evidence was a marketing tool for potential students. His state has a voucher system where students are given a sum of money to attend the state college of their choice. This creates a competitive environment where colleges and universities compete for students and

evidence of learning at your campus could positively influence potential students and their parents to choose MSU.

At least three other campuses decided to use the REAL model for assessment at their campuses. This was an indication that the REAL assessment system was viewed as a good model by the external world. The charge of the AAC was broadened in 2007, with an associated name change, the Leadership Council. In addition to program assessment, this committee now directs the use of REAL for program review and strategic planning. As for the future of REAL, the dream of the Director of Assessment was that integrating REAL into campus policy would ensure its continuation. He hoped that faculty would look beyond their individual classrooms and participate in the organizational learning of MSU. This would involve them contributing evidence of student learning and the achievement of campus goals as well as give direction for the future planning of the University. He believed he needed additional resources to continue the development and maintenance of REAL.

Research Question 2. What was the extent of REAL adoption on the MSU campus?

A low rate of REAL adoption was reported by the faculty in the survey. Sixty percent of the sample reported having heard of REAL, but only 36% reported actually using REAL. The most frequently reported number of times used was (1) never (64%), and then (2) 1-5 times (17%). In order of decreasing frequency, the uses reported for REAL were program assessment (n = 72), program review (n = 52), department planning (n = 30), accreditation (n = 24) and curriculum development (n = 19). When asked about

their agreement with the statement that REAL was visible on campus, the respondents "disagreed" (mean = 2.26, sd = 1.38).

Examining the characteristics of the REAL adopters (n = 86/239), they served on assessment committees (83%), were assigned to enter plans/results into REAL (52%), and entered information into REAL (67%). Eighty percent of the adopters had used REAL for program improvement and 61% for program review. However, the most common frequency reported by adopters was again only 1-5 times (40%), a low level of use.

The interviewee participants (n = 9) were all experienced users of REAL. However, they also reported REAL's lack of visibility on campus, that it was "not looked at or talked about" among the faculty. They also reported that the deans of the colleges, campus leaders who should have been key players in assessment, were not much involved with REAL.

Research Question 3. What were the reasons for REAL adoption or lack thereof on the MSU campus?

Figures 16 and 17 present the factors that were identified in the survey and the interviews as related to adoption of REAL. Figure 16 illustrates the quantitative factors identified in the survey that significantly influenced the adoption of REAL. The factors that were either associated (correlations) with using REAL or that predicted (regression and logistic regression) using REAL are highlighted. Figure 17 lists all the adoption categories that were identified in the interviews, from highest to lowest frequency, and the final themes

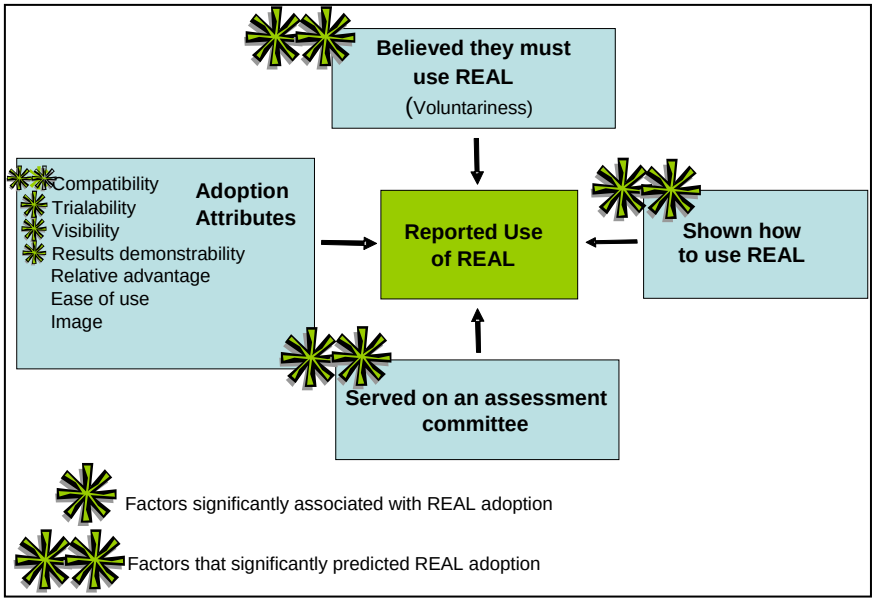

Figure 16. Quantitative factors from the survey affecting adoption of REAL (N = 86 users & 151 non-users).

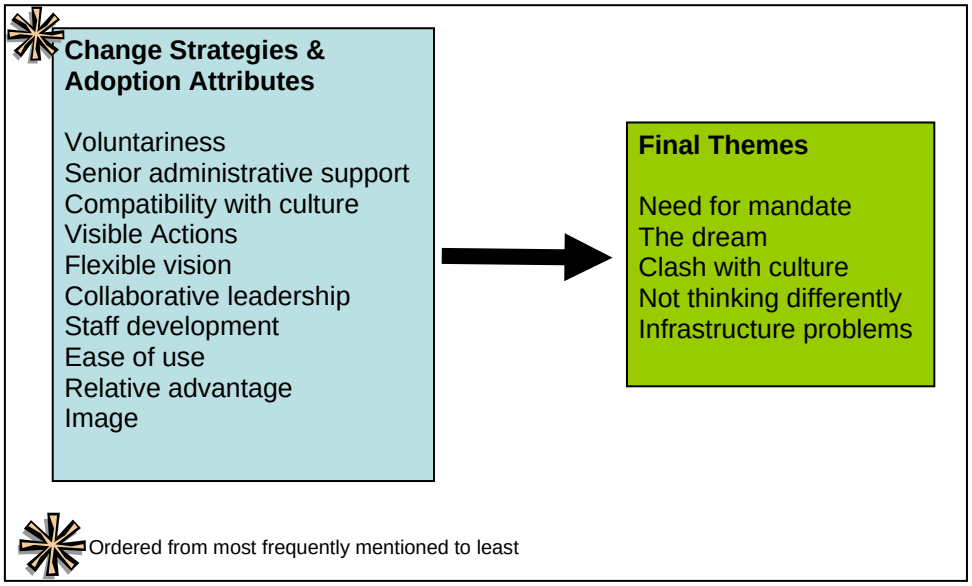

Figure 17. Qualitative factors from the interviews that influenced the adoption of REAL (n = 10 adopters).

that emerged. The information in these figures will be discussed further in the following sections for Research Questions 3a, 3b and 3c.

Research Question 3a. Did the diffusion attributes of Rogers (2003) and Moore and Benbasat (1991) predict adoption of REAL?

Survey findings. The survey identified the faculty perceptions toward using REAL. In general, they reported that REAL did not have the attributes that encouraged adoption of an innovation, according to Moore and Benbasat (1991). Coupled with the low level of REAL adoption, this appears to support the theory that adoption of REAL is associated with the following attributes: voluntariness, result demonstrability, relative advantage, compatibility, ease of use, trialability, image and visibility. Specifically, the faculty respondents:

- "somewhat agreed" (mean = 4.98) that they were not required to use REAL (*voluntariness scale*).
- were "neutral" (mean = 3.71) on the issue of whether they understood the results from REAL (*result demonstrability scale*).
- "somewhat disagreed" (mean = 3.15) that REAL had advantage over previous practices (*relative advantage scale*).
- "somewhat disagreed" (mean = 2.88) that REAL was compatible with their work (*compatibility scale*).
- "somewhat disagreed" (mean = 3.27) that REAL was easy to use (*ease of use scale*).

- "somewhat disagreed" (mean = 3.49) they had the opportunity to try out REAL (*trialability scale*).
- "disagreed" (mean = 2.00) that using REAL was a status symbol used by important people on campus (*image scale*).
- "disagreed" (mean = 2.26) that REAL was very visible on campus (*visibility scale*).

Another finding that supports this theory is agreement with some of the innovation attributes strengthened as the use of REAL increased. This suggests that individuals with these perceptions of REAL were more likely to adopt it. Here are the results that demonstrate this relationship (all significant at the .01 level):

- Using REAL helps me plan and improve student learning. (r = .243) *(relative advantage attribute)*
- Using REAL provides me with new ideas for assessing and improving student learning. (r = .295) *(relative advantage attribute)*
- I believe I could communicate to others the consequences of using REAL. (r = .254) *(result demonstrability attribute)*
- The results of using REAL are apparent to me. (r = .400) *(result demonstrability attribute)*
- At MSU, one sees many people using REAL. (r = .354) *(visibility attribute)*
- REAL is very visible at MSU. (r = .439) *(visibility attribute)*
- I know where I can go to satisfactorily try out various uses of REAL (r = .537) (*trialability attribute)*

One purpose of Moore and Benbasat's (1991) survey instrument was to predict adopters of an innovation; the more that respondents agreed with the attributes, the more likely they would be to adopt the innovation. One way they tested this theory was to divide respondents into adopters and non-adopters and compare their responses on the eight scales; adopters demonstrated higher levels of agreement with the innovation attributes than non-adopters. In this study, Moore and Benbasat's survey instrument did *not* consistently distinguish between adopters and nonadopters. However, adopters did report REAL as more visible ($p < .001$) on campus and being more knowledgeable about the results of REAL ($p = .009$). Also, adopters reported less choice or voluntariness in using REAL ($p < .001$); in other words, they were more often required to use REAL.

Another way Moore and Benbasat (1991) tested this theory was to statistically measure whether a model with the eight scales predicted adoption of an innovation. In their study, the scales did significantly predict adoption of an innovation. In this study, logistic regression revealed that the eight scale model did *not* significantly predict whether or not a respondent used REAL. However, the eight scale model did predict whether a respondent went online to view REAL (explained 58%; $p = .001$) and entered data into REAL (explained 51%; $p = .001$). In the first two models, the only significant variable was voluntariness ($p = .024$ and $p = .035$). In the third model, both voluntariness ($p = .002$) and compatibility ($p = .014$) were significant variables, explaining 51% of the variance. So, in addition to voluntariness, REAL's compatibility with how the faculty respondents liked to work was a significant influence on entering data.

Voluntariness alone was identified as a significant predictor ($p < .001$) for whether respondents used REAL that explained 41% of the variance. As reported in the survey, 52% of the adopters were assigned to enter data into REAL compared to 2% of the non-adopters. Thus, faculty members that felt required to use REAL were more likely to adopt it. Voluntariness also predicted the number of different ways that someone used REAL (explained 32%, $p < .001$). So, the more that faculty felt required to use REAL, the more they used REAL for different purposes. Thus, voluntariness was the most consistent predictor of REAL adoption, with compatibility being a significant predictor for one measure of adoption, whether or not someone entered REAL data.

The answers respondents gave to the survey question of "what would increase or improve the use of REAL" also support this theory. All of the Moore and Benbasat's (1991) attributes were addressed in the comments except image. The incompatibility of using REAL with the faculty culture was the second biggest problem addressed. Primarily, they did not believe that REAL related to their teaching and/or research, and they did not have time to work with it. The third largest problem addressed was that either they saw no relative advantage to using REAL or did not know its advantages. Ease of use was also a fairly large problem in terms of the appearance of the REAL interface, the need to simplify it and difficulty getting access to it.

Interview findings. The interviews also supported the association of innovation attributes and adoption, as illustrated in Table 40. All of the Moore and Benbasat's (1991) attributes emerged in the interviews except trialability. Voluntariness was the most frequently discussed category, followed by compatibility, visible actions (which

included result demonstrability and visibility), ease of use, relative advantage and image. The final themes for the interviews again reflect this association and include the incompatibility of REAL with campus culture, the need for a mandate to use REAL (voluntariness) and problems with the REAL infrastructure (ease of use). The fact that the lack of these attributes co-exist with a low rate of adoption suggests a relationship.

Table 40

Support for Rogers (2003) and Moore & Benbasat (1991) Adoption Theories in the Interviews

Attribute	Overall Attribute Frequency	Lack of Attribute Frequency
Voluntariness	75	69 required to use
Compatibility/Culture	59	53 REAL incompatible
Visible Actions (includes result demonstrability & visibility)	55	7 not visible
Ease of Use	29	21 difficulties using REAL
Relative Advantage	27	13 not viewed for improvement
Image	26	1 communicates our assessment not good enough

Research Question 3b. Did Eckel and Kezar's change strategies (2003) explain adoption of REAL?

Survey findings. The survey shed some light on two of Eckel and Kezar's change strategies, staff development and senior administrative support. While 54% of REAL adopters were offered training, only 9% of non-adopters were offered. Regarding incentives, only two individuals indicated receiving any type of incentive for using REAL.

Respondent answers to the survey question "What would increase or improve the use of REAL" also support this theory. All of the change strategies were addressed except collaboration. Staff development was the most frequent response (n = 43), either the need for training or needing to know what REAL. Compatibility responses (n = 25) were presented in the above section about Moore and Benbasat's (1991) theory. Senior administrative support comments (n = 20) were about the need for incentives, communication about REAL and the need for REAL to have value. Similarly, visible action comments (n = 5) also indicated that the results of REAL had to matter.

Interview findings. The interviews were the primary source of evidence for Eckel and Kezar's (2003) Mobile Model of Change theory, as illustrated in Table 41. All the change strategies emerged in the interviews, and all were reported as insufficient at some level except flexible vision. Again, the lack of change strategies coupled with the low rate of REAL adoption lends support to this theory. Lack of compatibility with the faculty culture and campus practices was overwhelmingly identified as the largest problem with

Table 41

Support for Eckel and Kezar's (2003) Change Theory in the Interviews

Change Strategies	**Overall Frequency**	**Lack of Frequency**
Senior Administrative Support	75	12- lack of support/ administrative turnover/ Deans not involves
Culture/Compatibility	59	53- incompatible with faculty & campus culture/ no faculty buy-in
Visible Actions	55	1- not visible
Flexible Vision	48	0- lacking vision
Collaborative Leadership	38	5- lack of collaboration
Staff Development	33	7- lack of training

using REAL. This problem alone may explain a large proportion of the low rate of REAL adoption.

Research Question 3c. Were there other factors associated with the adoption of REAL?

Three other factors influenced the adoption of REAL, (a) communication of the Director of Assessment's dream for REAL, (b) serving on an assessment committee, and (c) being shown how to use REAL.

"The dream" of the Director of Assessment emerged as a theme from the interviews. The Director had a clear vision of what REAL should be and how it should impact the University and its stakeholders. His dream ideas are illustrated in Figure 18. He consistently conveyed this dream, as reflected in his two interviews and supported by the comments of the other interview participants. It is clear that he and he alone made REAL work. He had some assistance from higher level leadership and computer workers. However, it was primarily the Director who communicated the vision, did all the training and answered all the calls for help, which were many. He seemed to be a one man show. Concerns were expressed that if he left the University, REAL and assessment might go away with him.

The second important variable associated with the use of REAL at MSU was serving on an assessment committee. Eighty-six percent of the REAL adopters served on assessment committees compared to 33% of the non-adopters. Logistic regression revealed that serving on an assessment committee significantly ($p < .001$) predicted 29% of the variance associated with adoption of REAL. The prediction was correct 82.6% of the time, more accurate for users (83% correct) than nonusers (67% correct).

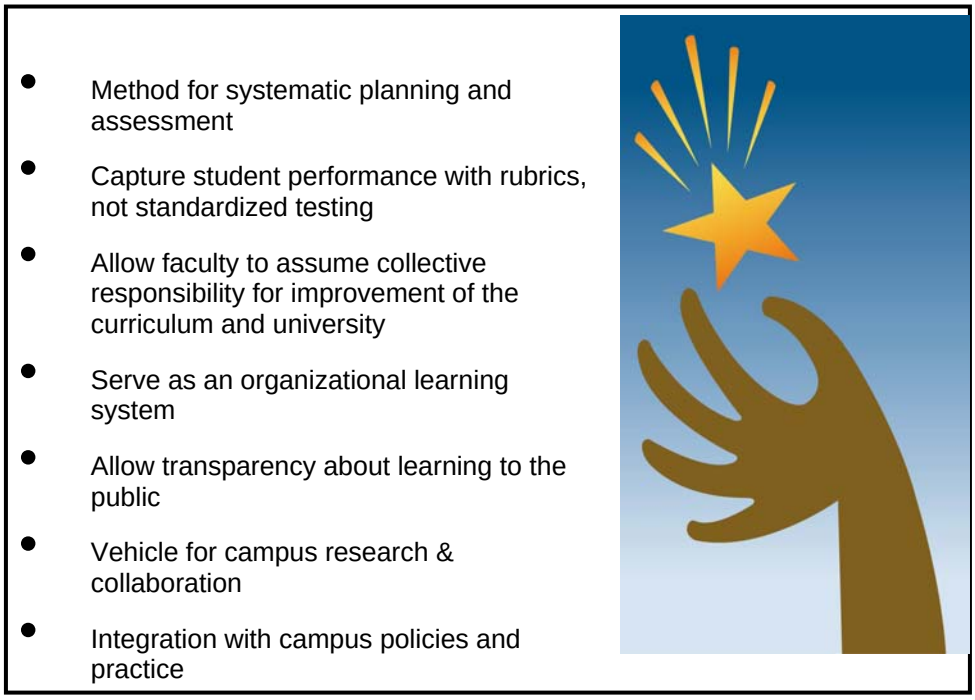

Figure 18. The Director of assessment's dream for REAL.

The third factor associated with the use of REAL was being shown how to use REAL. Logistic regression revealed that being shown how to use REAL significantly ($p < .001$) predicted 55% of the variance associated with the adoption of REAL. Sixty-seven percent of adopters were shown how to use REAL compared to 3% of the non-adopters. The prediction was correct 86.1% of the time, much more accurate for non-users (96.7% correct) than that for users (67.4% correct). When the two factors of serving on an assessment committee and being shown how to use it were combined in a logistic regression model, they explained even more (61.6% of the variance), although the accuracy of the prediction remained exactly the same as being offered training alone.

Research Question 4. What was the impact of REAL on MSU campus practices, particularly teaching and student learning?

The low level of REAL adoption, as reported by the faculty in the survey (36%), suggests that there has not been much impact on campus practices. For instance, 86% of the survey respondents (n = 202) reported REAL had not helped their department improve teaching or learning. However, 34 respondents did report improvements including: department goal setting (n = 20), course content (n = 17), student evaluation methods (n = 14) student learning (n = 10) and teaching methods (n = 6). The adopters of REAL (n = 86) reporting using REAL in multiple ways including: program assessment (n = 69), program review (n = 52), department planning (n = 28), accreditation (n = 23) and curriculum development (n = 17). So, REAL had some impact, although not as much as anticipated.

The participants (n = 9) experienced users of REAL, believed it had great potential to improve teaching and student learning. While accreditation (n = 5) and program review (n = 5) were the most frequently reported uses of REAL by these individuals, organizational learning was the next most common (n = 3). In this ongoing process of improving the University, they included faculty learning, student learning, curriculum revision and faculty research projects as examples of using REAL.

An interesting perception of the participants was they sensed REAL was having an impact on other programs (n = 5) and colleges but not on theirs (n = 4). In other words, they did not have any first hand experience to report but had a sense it was working elsewhere at the University. They also were frustrated at the lack of faculty buy-

in to REAL in their colleges for many of the culture incompatibility reasons already cited, such as: (a) REAL not used regularly enough to remember how to use it, (b) not enough leaders working with it, (c) not related to their discipline, (d) made faculty work too hard, (e) faculty did not want to be evaluated, and (f) assessment was not valued.

The Director of Assessment had a unique perspective and reported that REAL had had a significant impact on assessment practices. In two separate interviews, he described how much departmental assessment plans had improved over those first three cycles in 2003-04 prior to the Higher Learning Commission site visit and the impact on campus practices. He made the following statement about the improvement of assessment plans.

> I was surprised that the departments were as attentive as they were. They introduced nearly all of the feedback comments and improvements (from the AAC review), and planning over the next two cycles improved immensely. Outcomes became longer and more described. . . . What evolved was a system of assessing learning that was direct, based on student demonstrations. Nearly all of them began to use rubrics or some kind of evaluation instruments based on primary traits that ranged from three to six elements, and these primary traits would end up in their outcome descriptions. And this process is found in almost every outcome, although we only required it in two of three. I would say that it's in about 80 to 85% of the outcomes. . . . So when the accrediting team looked at the database, they were looking at three iterations of planning that showed consistent improvements. They could see the development from a simplistic definition of an outcome, like the student shall write effectively, to describing the characteristics of writing such as organization, development of a thesis or hypothesis, documentation of resources, mechanics of writing, and so on, maybe even critical thinking synthesis.

Regarding the impact on teaching and learning, the Director reported he could measure this by tracking entries in assessment plans. For example, he reported 2517 instructor dialogues, 768 learning outcomes defined, 534 evaluations of student demonstrations and 352 program improvements for 2003-2004. Here is the perspective of the Director on monitoring learning.

> I don't believe it's possible to show that any system from let's say 2005 produced more learning than the process used in 2003. I just don't know how to measure or quantify learning that way, but what the REAL system's been designed to do is to show process and activity and I can give you some examples. When I go to the database, I can classify all the components of every plan. If you look just at improvements, for example, there were 205 in assessment over the period 2003-2004. They added or replaced measuring instruments in 61 outcomes. I view those as important improvements, because it improves the way they are researching student learning, and so they're going to get better data. Now, for curriculum, there were 64 improvements overall. They found through their data collection on student learning that they needed to change or fix something in their curriculum. So, they discovered strengths and weaknesses in student learning on their demonstrations whether it be a project, writing project or a design project, and they might have five or six characteristics that they're measuring. They find that students are doing well in three of them but poorly in two and—and they work to fix those. So it's a continuous evolution because they're always trying to raise their low performances.

Another way REAL affected campus practices was through program review. This was mandated review of every campus program every 6 years. A team of reviewers from outside the department reviewed an electronic self-study document created by the department. This self-study had to include information from REAL, forcing programs to complete assessment plans. This impact could be measured by faculty responses in the survey. Program review was only second (n = 52) to program assessment (n = 72) in terms of how REAL had been used and program review was considered the most important use of REAL (22%). In the interviews, program review (n = 5) was the most frequently mentioned use of REAL, along with accreditation (n = 5).

Although REAL had an impact on campus practices, the message was not getting out to many of the faculty members. They were totally absorbed in their teaching and research activities and were fairly oblivious of REAL and the related assessment activities that were happening on campus. Faculty were also not "thinking differently" yet, as predicted in Eckel and Kezar's (2003) Mobile Model of Change. Not thinking

differently was also one of the overall themes of the interviews. MSU faculty members viewed REAL as something they had to do for the administration, not relevant to their teaching and not a means for improvement. They also did not view themselves as having collective responsibility for organizational learning that extended beyond their classrooms.

Chapter 5

Discussion and Conclusions

In this chapter, the major findings about the implementation of REAL on one university campus will be discussed, as well as the implications of the study, limitations, and areas for future research. Guidelines for other campuses seeking to improve the adoption of assessment systems will also be presented.

Major Findings

Interview participants identified the steps that MSU took to implement a new electronic assessment system. Major steps included the following: creating a full-time director of assessment position, creating a peer review committee to develop the assessment system and review assessment plans, the Provost dictating that all programs must develop assessment plans and report on progress, creating an electronic assessment infrastructure and integrating REAL into program review and strategic planning. The electronic survey in this study revealed a low rate of adoption for REAL by faculty members and differences between adopters and non-adopters. Primarily, adopters were required to use REAL, served on assessment committees and were trained to use REAL.

The survey revealed that faculty did NOT think REAL:

- had a relative advantage over previous practices,
- was compatible with their work,
- was easy to use,
- was visible on campus, and
- was a status symbol on campus.

The majority of faculty also reported not having an opportunity to try REAL.

Regarding the survey findings from Moore and Benbasat's (1991) eight scale (28 item) instrument for measuring perceptions toward an innovation, only voluntariness and compatibility statistically predicted who would use REAL. In terms of voluntariness, the adopters of REAL generally believed they were required to participate. In terms of compatibility, faculty who entered data into REAL believed it was LESS compatible with their work that those who did not enter data. So, the individuals who knew the assessment system the best reported that it was not compatible with faculty work and campus practices.

Two other factors from the survey statistically predicted the adoption of REAL, serving on an assessment committee and being shown how to use REAL. Additional factors from the survey and interviews possibly explained the low rate of REAL adoption. These included:

- REAL not relevant to teaching,
- REAL not viewed as a tool for improvement,
- REAL work not valued by the academy (as research is),
- REAL difficult to use,
- faculty not knowing about REAL,
- faculty already too busy,
- REAL making the work of faculty harder,
- faculty discomfort with being evaluated, especially in their classrooms,
- faculty already doing a good job of assessment in their courses, and

- faculty not feeling responsible for departmental, college or campus assessment efforts.

In the survey, faculty respondents who were primarily non-adopters (64%) reported REAL had had little impact on learning and campus practices. Only a small proportion of adopters believed that REAL had helped improved teaching or learning. The interview participants, adopters of REAL, were somewhat more positive. They believed that improvements were happening on campus, but not in their own colleges and expressed frustration with this lack of progress. They were also more optimistic about the potential for REAL impact on the campus.

Several interview participants made a point of saying that REAL was not "going to go away." One participant described her surprise at the longevity of REAL.

> In fact, you know, looking back on it, I'm actually now surprised that it lasted as long as it has, because I've been here a number of years, you know, more than 20, and I've seen a lot of these different kind of initiatives, data gathering, and tracking and all that kind of stuff come and go, where there's been a big enthusiastic start and people do it for a few years and then it kind of gradually fads away.

Another participant expressed his conviction that REAL would someday be widely adopted. "Eventually, I think it will just become part of the culture. Ten years from now we'll just say, 'Well, that's what we do.' But we're not in that phase yet."

The Director of Assessment believed that REAL had had a much greater impact. Although he did not believe he could prove student learning had increased, he reported great improvement in the quality of assessment plans and assessment practices and a greatly increased number of improvements in the plans. Also, REAL had been integrated

into the program review process and the learning performance metrics for the University strategic plan.

Implications

People Not Thinking Differently about REAL

According to Eckel and Kezar's (2003) Mobile Model of Change, new ways of thinking are a core outcome of change. In fact, all five of their core change strategies are approaches for making people think differently. For instance, *staff development* provides people with new ideas. *Collaborative leadership* facilitates new ways of thinking through the interaction of many people. Adopting a *flexible vision* allows people to challenge their thinking. *Visible action*, demonstrating the impact of a change, can convince people to adopt new ideas. Regarding *senior administrative support,* if the leaders state that assessment activity is valuable and they put resources behind it, faculty will give REAL work a higher priority.

One of the interview themes was MSU faculty were not yet thinking differently about REAL; they did not view assessment as relevant to their teaching and did not see it as a means for improvement. They also did not think doing assessment with REAL was their responsibility as evidenced by their reporting that they were not required to do it and were not using it.

Organizational learning. MSU faculty certainly did not believe they had a responsibility for departmental or campus planning and assessment with REAL. According to Bok (2006), a "learning organization" uses assessment evidence to measure the achievement of program goals, improve teaching, revise the curriculum and solve

campus problems. Kuh et al. (2005a) described such institutions as having an "improvement oriented ethos" where personnel are in a perpetual learning mode, "monitoring where they are, what they are doing, where they want to go, and how to maintain momentum toward positive change." With this ethos, personnel are engaged in "positive restlessness" where they constantly revisit and rework policies and practices to make them better. Data-informed decision making is the underpinning for all these efforts.

At MSU, faculty did not see the relevance of REAL to their teaching and research activities, because REAL was used for departmental/program goals and outcomes. These departmental discussions seemed "few and far between" and not of interest to the faculty members. Faculty members' ways of thinking would need to be changed in order for them to assume responsibility for department/ campus learning and improvement.

The dream of the director of assessment. The dream of the Director of Assessment at MSU was that REAL would capture the assessment of student learning that was being conducted in the MSU classrooms. These would not be standardized testing, but assessments of actual student performance using numerical grading rubrics. His dream was also that faculty would take collective responsibility for improving their departments, especially the curricula. He wanted the faculty to see themselves as members of an organization, to research how well they were meeting organizations goals, especially student learning, and then use the evidence gathered to improve the organization.

With all this information entered into REAL, the database would serve as an institutional learning system that would guide MSU towards becoming a learning organization. REAL would be the means for establishing systematic assessment at MSU. He also believed that REAL would help blunt the administrative turnover problem common to MSU and higher education in general by establishing continuity in planning and assessment. REAL would also be the means by which the University could achieve transparency, allowing public access to information about student performance at MSU, accreditation results, etc.

The Director of Assessment wanted REAL work to be viewed as research activity rather than required busy work. He hoped that faculty members would use REAL data for educational research projects and that faculty would collaborate across departments in these efforts.

The Director of Assessment was also concerned about getting better buy-in for REAL from the faculty. His initial focus had been to just get assessment plans done and into REAL before the visit of the HLC. His new direction was to focus on what he called the "human culture," increasing and consolidating support for REAL. That was where he thought other campuses should start implementing an assessment system, if at all possible.

He also wanted REAL to be incorporated into campus policy, such as program review and the University strategic plan. He had a fair amount of success with this. Program review was reported as the most important use of REAL by survey respondents.

In the interviews, program review was the most frequently mentioned use of REAL, along with accreditation.

Changing the Culture to Promote the Dream

Incompatibility with the campus culture. According to both theoretical frameworks for this study, an innovation needs to be compatible with the organizational culture for successful adoption and diffusion to occur. According to Rogers (2003), individuals will not adopt an innovation that is incompatible with how they go about their daily work. According to Eckel and Kezar (2003), a change will not be successful if it is incompatible with the dominant culture. Also, adoption of a change ultimately results in changing the culture.

Clearly, REAL was fairly incompatible with the faculty culture at MSU. According to the culture theory of Schein (2004), the underlying assumptions of a culture are the unconscious, taken for granted beliefs that are the real values of the culture and guide behavior. A change agent has to know those assumptions as well as change them for a change to succeed. The underlying assumptions of the MSU faculty culture were (a) assessment with REAL is only for accountability and administrative purposes, (b) REAL is a necessary evil, and (c) programs only have to give lip service to it. So, the departments developed their assessment plans, but assessment did not affect how they conducted business.

MSU faculty members reported being extremely busy with their work and getting their careers established. It was probably very difficult for anyone to get their attention. As one faculty member said, “Something like REAL is just one of dozens of initiatives

swirling around in the storm of issues we have to deal with." Many respondents of the survey had never even heard of REAL, even though it had been on campus since 2002. Somehow, REAL needed to gain more visibility and a higher priority in the eyes of faculty for them to consider using REAL.

Instead of REAL being the topic at faculty meetings that made people roll their eyes and make jokes, it needed to be "this is how we do things around here." Although incorporating REAL into campus policy, such as program review, was a very positive step in the right direction, the adoption process had a long way to go in getting individual faculty members on board.

Creating value for REAL. Faculty reported in the survey and interviews that REAL was not a valued activity on campus. The most important faculty activity reported was research. Faculty viewed doing REAL work as just bean counting for the administrators. To make REAL work more valued would require the active involvement of the senior leadership of the University, the president and vice presidents, and particularly the college deans. These latter individuals were often identified as missing players in the REAL process. All these individuals should serve as the leaders of assessment on campus and publicly announce that REAL is important, make sure that REAL is frequently mentioned in University documents and policies, regularly review REAL plans and reports and reward participation in REAL.

The Director of Assessment has done an amazing job of being the sole leader of assessment at MSU and conveying his dream for REAL. He has very effectively and tirelessly served as the assessment leader. Such a dedicated leader, whose sole

responsibility is assessment, is definitely needed. However, it is now time to get more senior leaders on board, especially the Deans. As one participant said, the Director of Assessment is great, but he is not high enough in the hierarchy.

> No disrespect to ____ (first name of director), but that wasn't a level of authority in the sense that it didn't make me shake in my boots. You know, ___ and I are great buddies, but in reality, he's not my boss. But it also came down that the Deans were given a mandate via the Provost and the Council of Deans to say, this is where you're going. And so that is why I think we started using it.

Regarding rewards, probably the most important reward would be giving REAL work "credit" in the promotion and tenure process. According to the MSU survey respondents and interview participants, REAL work was not given credit in promotion and tenure. As listed in the survey, other rewards could include (a) opportunity to attend workshops/conferences, (b) release time, (c) increase in salary, (d) faculty awards, and (e) public recognition. Only two of the 239 faculty respondents indicated receiving any of these rewards. Another participant indicated that getting "credit" for REAL in the annual performance review was also necessary.

Other senior administrative supports would include a support staff for the Director of Assessment to develop and maintain the REAL infrastructure. The Director of Assessment did have some computer support, but it was insufficient to build the type of interface that people now expect. An easy to use, clean interface requires lots of behind the scenes professional programming. Although the faculty did not complain about a lack of technical support, the Director seemed to be struggling to make modifications and updates in REAL as needed.

Another issue that senior administration should deal with is faculty overload. Faculty members only have so much time and energy and there is a limit to the number of activities they can handle effectively. In this project, faculty consistently claimed they did not have enough time to do what was required of them for teaching, research, and promotion and tenure, let alone take on assessment. A contributing factor, according to the Director of Assessment, was MSU had not had enough faculty members for some time, due to low state funding levels. Giving research status to REAL work, as the Director of Assessment dreamed, would alleviate some of this tension. Another factor that contributes to this overload is the large number of change initiatives that are happening concurrently on any given campus. Kuh and colleagues describe these change initiatives as "trains on their own tracks, running parallel rather than being meaningfully connected to other interventions in a way that stitches them into the campus culture" (Kuh, Kinzie, Schuh, & Whitt, 2005b, p. 273). It is the responsibility of the senior leadership to decide on which change initiatives campus personnel should focus and clearly communicate this.

Eckel and Kezar's (2003) Mobile Model of Change stresses the importance of leadership that is collaborative. Lack of collaboration on campus was cited as a problem by interview participants. The model of collaborative leadership enacted by MSU's AAC (composed of Associate Deans) was quite successful in getting REAL assessment reports online very quickly. The peer review process the AAC members used to review plans was also very successful in improving departmental assessment plans. Because MSU Deans would be the key leaders for giving REAL work value, the Council of Deans could

use a similar collaborative model to review the assessment process on campus. The Council could also stimulate collaboration across departments and colleges on assessment projects.

Educating about the dream. An essential strategy for changing the MSU culture would be conveying the Director of Assessment's dream to the faculty through an education effort. Staff development is one of the five key change strategies in Eckel and Kezar's (2003) Mobile Model of Change. Also, learning about the relative advantage of an innovation and being able to try it out (trialability) are key attributes for facilitating adoption according to Rogers' (2003) diffusion theory. Forty percent of the MSU survey respondents had never heard of REAL and 65% had never viewed REAL plans and reports. The need for staff development was the number one answer to the survey question, "What would increase or improve the use of REAL?"

The initial staff development at MSU was for the associate deans on the AAC, chairs and designated faculty who would enter assessment information. Clearly this circle of informed faculty needs to be enlarged. All faculty need to be educated about REAL's purpose, advantages and results to date, as well as hands on experience with using it. The system is complex enough that hands-on training is necessary. Also, being shown how to use REAL was a key predictor of adoption identified in the survey.

One concept that is generally misunderstood is assessment does not stand alone. There has to be something to assess! Assessment is the means for finding out if an initiative or project has been successful, not an end of itself. As illustrated in Figure 19, assessment must be linked to the planning process and based on project goals so that the

appropriate evidence is gathered throughout the project. If one waits until the end of an initiative to decide how to evaluate the success of the project, the appropriate data will probably not be available.

Communicating the dream. In addition to education for all faculty, there needs to be constant communication and conversations about the impact of using REAL. Eckel and Kezar (2003) would call this communicating the "visible actions" of a change. Rogers (2003) would call it communicating the observability attributes of an innovation, while Moore and Benbasat (1991) would talk about "result demonstrability" and "visibility." As reported in the survey, 86% of the faculty did not see REAL as improving teaching or learning. However, examples of improvement were generated by adopters and the Director could cite many examples. These need to be conveyed, either by the senior leaders or with their support. The leaders need to make it perfectly clear that REAL is NOT "going to go away" as other campus initiatives *du jour* have in the past.

Campus Practices to Promote Participation in REAL

In addition to education about the dream for REAL and constant communication about its impact by senior leaders, other practices need to be put in place to ensure the widespread adoption of REAL. Collectively, these strategies could ultimately change the faculty culture at MSU and result in new ways of thinking about assessment.

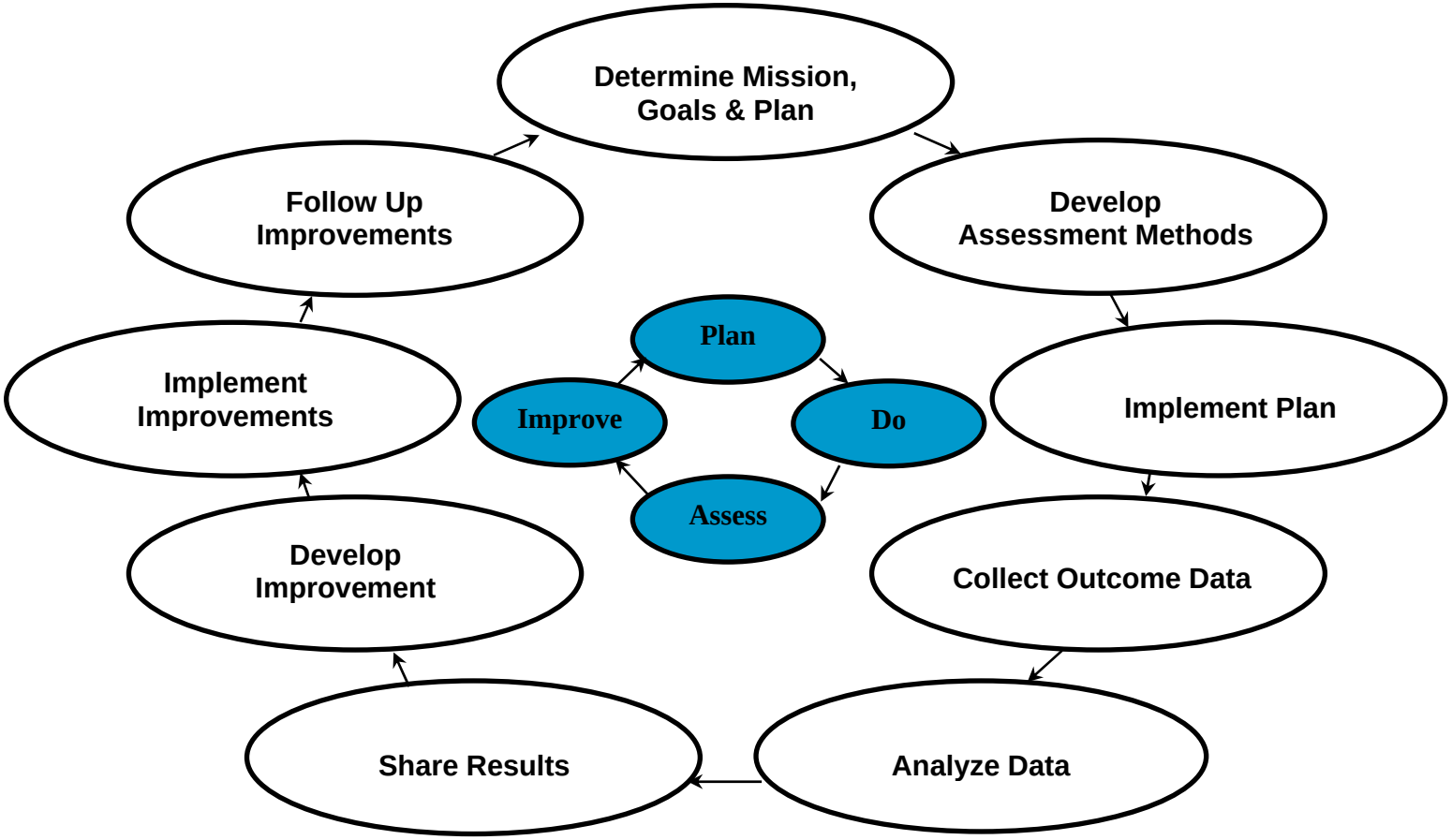

Figure 19. Closing the loop: linking planning and assessment for improvement (McCann, 2006)

Mandating engagement with REAL. REAL use would need to be mandated to increase participation. Clearly, the lack of a requirement for REAL at MSU was associated with the low rate of adoption reported by the faculty. Also, requiring the use of REAL was associated with positive ways of thinking about assessment. In the survey, the adopters required to use REAL reported more positive perceptions about some of the innovation attributes, particularly knowing about the results of REAL. They more frequently reported that REAL was improving teaching and learning. Also, they became more positive about REAL as they used it more frequently and for different purposes. The interview participants, adopters required to use REAL, were also generally positive about the system. Finally, history indicates that REAL was only widely used at MSU when it was required just prior to the HLC accreditation visit. Once a positive HLC site report was received, REAL was no longer required and participation languished.

Mandating REAL could involve:

- Requiring assessment plans and reports with results for all departments/programs with annual review of these plans by College deans.
- Requiring assessment plans for all Colleges with annual review of these plans by President, Vice Presidents and Deans. This could be a collaborative peer review of college assessment plans, similar to the review the AAC does for departmental plans. This would also facilitate monitoring progress on the University Strategic Plan which has REAL targets in it.
- Evaluating the work of faculty responsible for entering REAL data at their annual performance reviews. Hold them accountable for doing it and give

them credit for doing it well. In fact, all faculty members should be required to link personal goals with those of department.

- Requiring departmental and college presentations of REAL plans and results, conversations about what they mean and the impact on teaching and learning.

Establishing department and college assessment committees. In addition to the high level assessment committees, such as the AAC and one at the Dean/Vice President level, departments and Colleges should have assessment committees. These would be the individuals who would write the plans, track the data and report the results to REAL. Since being on an assessment committee was a predictor of adoption in this project, over time all faculty should have to serve on such a committee. These groups could develop the presentations for the faculty as a whole.

Integrating with campus policies and practices. Kuh et al. (2005b) talks about the synergy that can occur if policies, programs and practices are combined. They become "sticky," clump together and the sum of their collective impact is greater than the influence of any single practice. Combining REAL with campus policies and practices could help make assessment stick and be widely adopted. As initiated by the Director of Assessment, the campus should continue to integrate REAL into campus polices and practices. This has already been done with program review and somewhat with the strategic plan.

Improving the REAL infrastructure. Both survey respondents and interview participants expressed frustration with the REAL software. The words most often used were overwhelming, confusing, frustrating and cumbersome, even from the adopters.

From the perspective of this researcher, the appearance of the interface was busy and confusing. Senior administration should provide the Director of Assessment with technical support so that the software can be improved. Focus groups of users could help define the direction for these improvements. Faculty also talked about the difficulty of access due to password protection which could hopefully be simplified, although ease of use and security are often at odds with each other. Another perspective is that REAL tried to do too many things which contributed to the general confusion; often simple is the best.

More collaborative efforts. Although collaboration has already been discussed from the senior leader perspective, it needs mentioning again from the perspective of informal leaders. Faculty who lead assessment efforts within their departments and colleges should not just serve an advisory role. They should be given the authority or empowerment to make decisions about assessment and improvement. Also, involving as many people as possible in the assessment process and related decision-making will facilitate changing the culture and moving toward new ways of thinking (Eckel & Kezar, 2003).

Continually monitor the impact. Evidence of change or adoption of an innovation on campus requires careful monitoring. Eckel and Kezar (2003) offer the following structural markers of change that can be counted and measured:

- changes in curriculum,
- changes in pedagogies,
- changes in student learning and assessment practices,

- changes in policy,
- changes in budget,
- new departments and institutional structures, and
- new decision-making structures.

For attitudinal and cultural evidence of change, Eckel and Kezar (2003) suggest the following markers:

- changes in the ways groups or individuals interact,
- changes in the language the campus uses to talk about itself,
- changes in the conversations that occur,
- old arguments abandoned, and
- new relationships with stakeholders.

The Director of Assessment, or even better, the AAC or the Deans assessment group should do an annual measurement of these change markers. Not only is this evidence needed to prove that changes have occurred, but it is also needed to get buy-in from the faculty (visible results) and for accreditation documentation. In the case of MSU, the following structural changes occurred: in assessment practices, in policies, with a new assessment unit and the AAC as a new decision-making structure (although it could have used some empowerment). No changes were apparent in the cultural markers. This supports the project finding of incompatibility between REAL and the faculty culture.

Developing awards for assessment and improvement. As discussed previously, incentives for assessment were not in the picture at all at MSU. Awards could be

developed for assessment and improvement, such as the most innovative assessment method, the best improvement in student learning or the best assessment research project. There could even be a fellowship/sabbatical to develop assessment scholars, such as sending a faculty member to be a Carnegie Scholar at the Carnegie Academy for the Scholarship of Teaching and Learning. For one year, these scholars spend two 10-day summer sessions together at the Foundation and additional time during the academic year to investigate issues of interest in teaching and learning.

Risk-taking and giving the OK to fail. As with trying anything new, people are afraid to experiment with assessment methods. They may fail and/or look bad to their colleagues. If they are trying something new in their classrooms, they may also be afraid of receiving poor course evaluations. One interview respondent presented this perspective:

> You have to come back later on and say, we set our goals too high, or we weren't realistic about it, which is probably embarrassing. And then when you're talking about big egos in higher education, of which there are many, then I think that's why initially some groups just don't really want to put anything out there. Heaven forbid that, you know, it would be public that they goofed up.

It is important for senior administration to let faculty know that it is OK to fail or screw up the first time they try something. This researcher has heard of a university that presents a faculty award for the worst screw up. Apparently, the award is highly coveted. That kind of environment would encourage people to take the risk and be innovative.

Putting money behind it. Any initiative costs money, whether it is for personnel, materials, education, etc. The same is true of assessment. If the leadership wants assessment and REAL to succeed, there needs to be a generous budget for it. At MSU,

financial support was given to the Director of Assessment position, as well as technical support, primarily work study students. But in general, interview participants indicated that REAL was something they did on top of everything else, and there was no extra money for training, related travel, release time or outside consultants. This lack of priority and funding should be reconsidered by the administration, particularly because transparency to the public and marketing for students were big issues in the state.

Limitations

One limitation of this study was the 42% response rate on the survey representing less than the majority of the MSU faculty. This occurred despite two reminders to the selected faculty members to complete the survey. This could mean that the sample was not representative of the faculty as a whole and that the results of the survey did not reflect the true opinions of the faculty. Getting a high response rate is more difficult today than in the past, primarily because people are inundated with requests to do surveys.

Another limitation of this study was the large number of survey respondents who were non-adopters of REAL. The non-adopters did not always know enough about REAL to rate it on the eight attributes. Although this result probably reflects the true situation at MSU, there might have been more statistical differences between adopters and non-adopters with a larger number of users and probably better support for Moore and Benbasat's (1991) instrument for predicting adoption.

Not having the opportunity to interview non-adopters was another possible limitation of the study. Several non-adopters were identified who appeared to have some understanding of REAL, based on the written comments they provided in the survey.

However, I was only able to get consent to interview one such individual and it turned out that he had REAL confused with some other campus database. So, his interview information was irrelevant.

One difficulty was determining the best indicator of REAL adoption. Deciding at what point they became an adopter was not a clear-cut factor. In this survey, the possibilities included:

- if they were assigned to enter data,
- whether they had viewed REAL online or on paper,
- whether they had entered data,
- whether or not they used REAL (derived from q. 10, how often used REAL),
- what different ways they had used REAL, and
- the number of times they had used REAL.

In general, the dichotomous variable of "whether or not used REAL" was statistically the best variable, but the results did vary by the choice of variables.

Similarly, measuring the impact of REAL on the campus was also difficult, particularly student learning. Both survey respondents and interview participants could not see much evidence of REAL improving teaching or student learning. Even the Director of Assessment did not believe he had direct evidence of improved student learning. Although proving learning may be a limitation of education in general, it is something that MSU will need to address. Improving student learning is the primary purpose of assessment, and the proof that legislators and accrediting agencies demand.

Moore and Benbasat's (1991) instrument for explaining adoption in the project survey did not predict adoption as hypothesized. They believed that their instrument could be universally used to explain adoption of electronic innovations. In other research studies, their instrument predicted adoption of personal computers in the workplace, bedside terminals in hospitals (Hebert & Benbasat, 1994), a smart card-based electronic payment system (Plouffe et al., 2001) and e-government initiatives (Carter & Belanger, 2005). In this study, only voluntariness predicted adoption. However, all eight scales (relative advantage, ease of use, compatibility, visibility, trialability, image, result demonstrability, and voluntariness) showed some relationship to the adoption of REAL, particularly to comments in the interviews and the open-ended question on the survey. Maybe the specific items within the scales are not the right ones to explain adoption on a university campus. In support of this, some of the questions in the instrument were significantly associated with adoption, including the two questions added to the relative advantage scale about improving student learning (Questions 24 & 25).

Future Research

One important area for future research would be the development of an instrument that better explains adoption of innovations in higher education. Possibly the same scales could be used with new questions that are more appropriate for the college and university environment. In particular, questions relating to relative advantage and compatibility could look quite different. Such an instrument might be used to predict the intent to adopt a new innovation, and the feedback could be used to make changes before implementation. Similarly, the instrument could be used to determine why a particular

innovation was not being widely adopted. This instrument could be generic or geared toward a specific innovation, such as assessment systems.

The incompatibility of assessment with faculty values and practices is a serious impediment to the implementation of assessment systems like REAL. Because such systems will continue to be demanded of higher education, educational researchers need to discover how to improve compatibility. These results suggest that doctoral level education should provide a more thorough grounding in assessment theory and practice. Professors need to know the rationale for assessment, why and how it would improve higher education and institutions. They would also need to learn good assessment practices and how to incorporate them into their teaching and research. This would need to become part of the value system and world view of college professors to get them beyond the lip service they currently pay to assessment.

There appeared to be proportionally fewer REAL adopters in Veterinary Medicine & Biological Sciences and more adopters in Applied Human Sciences. It would be interesting to explore the reasons for each of these. This might reveal some adoption explanations that were unique to MSU and important for REAL implementation. One possible explanation for the Veterinary College is only one person was responsible for all REAL work, suggesting that REAL had little or no impact on how the College did business.

Guidelines for Implementing an Assessment System

The following guidelines for implementing a centralized, online assessment system at a college or university are based on the outcomes of this study. Many campuses

are currently considering this possibility in order to meet accreditation requirements and the demands of the public for transparency of information. Figure 20 illustrates these guidelines, presenting a model for implementing an assessment system. Each element in the guidelines will be discussed in this section.

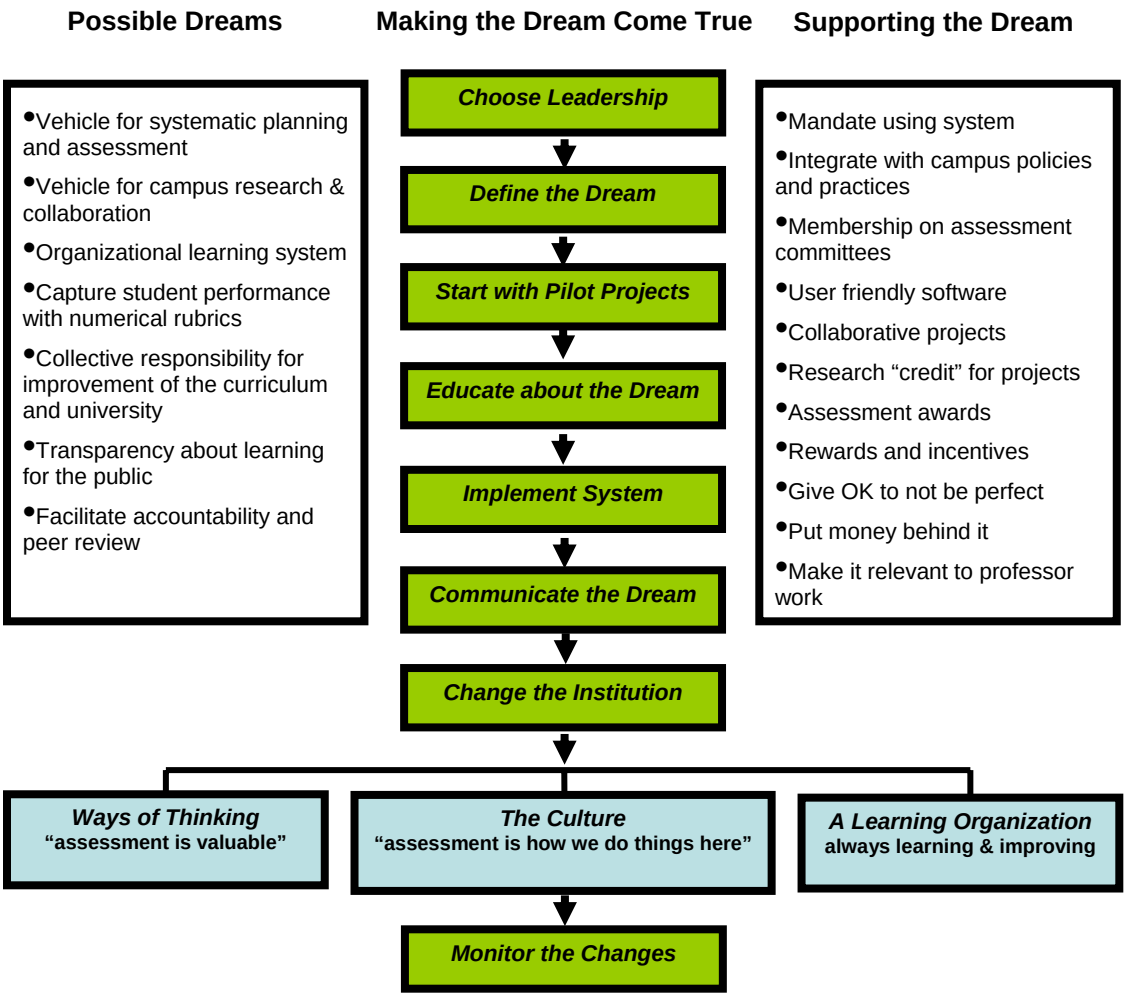

Figure 20. Model for the adoption of an online assessment system.

Choose the Leadership for Assessment

One leader whose sole responsibility is assessment is definitely needed. However other senior leaders need to be on board, especially the Deans and Provost, and they need to work collaboratively. These individuals can get the attention of faculty and provide focus on assessment work so that it can become valuable and take a higher priority in faculty life.

Define the Dream

Careful thought needs to go into developing the purpose of the assessment system and goals, what it will accomplish. Expanding faculty roles to a collective responsibility for the learning and improvement of their departments and colleges would probably need to be included in this vision for a system. As form follows function, this decision will shape the design of the software and the assessment process used. Figure 20 provides some ideas for defining the purpose of an assessment system.

Start with Pilot Projects

The ideal situation would be to start slowly and get some positive results before widespread implementation of the system. This would involve a few faculty volunteers doing small pilot projects where they demonstrate that planning and assessment with the system results in improved student or departmental learning. Then buy-in would slowly snowball throughout the campus.

Educate Faculty about the Advantages with Hands-On Training

Extensive faculty training with the assessment system would also need to be done prior to implementation for faculty buy-in. Faculty need to understand the importance of

using the system and what the institution stands to gain. Hands-on training is necessary to get people using an online assessment system, to both gain competence with the software and to overcome anxiety.

Implement the System

Now that there is some faculty buy-in, based on training and examples of success, it is time to implement the system. It is important that the system be user friendly. Continuously monitoring the impact of the assessment system is also vital for faculty ownership of the system as well as evidence of its efficacy in promoting learning and improvement.

Communicate About the System, Especially Results and Impact

Faculty need to know that the system is working and making improvements. They need evidence of specific improvements to persuade them that assessment can result in improvement. Since improvement does not happen overnight but over time, people need to be regularly informed about how the changes are evolving.

Mandate Faculty Engagement with the System

The more that faculty members work with the assessment system, the more they will value it. At annual performance reviews, faculty should have to link their personal goals to departmental goals. Responsibility for entering assessment data should be rotated among the faculty within a department. Annual assessment reports should be mandated for all departments and reviewed by the Deans. In developing these departmental plans, all the faculty members should be involved rather than the work of just one or two people.

Serve on Department and College Assessment Committees

Since serving on assessment committees was a predictor of assessment use in this study, the rotation of faculty onto these committees is crucial.

Integrate the Assessment System with Campus Policies and Practices

The integration of the system with all appropriate campus policies should be pursued, especially those involved with strategic planning, annual planning and the evaluation of college units and individuals.

Make Software User Friendly

A campus needs to provide the financial support to develop features that are clear, easy to access and easy to navigate. Consider having colleges and their faculty being able to see the plans and results of all other colleges, not just their own. Although the wide release of program results might make campus administrators uncomfortable, the average faculty member cannot be convinced of assessment system's efficacy without access to the information.

More Collaborative Efforts

The AAC peer review of assessment plans was a successful strategy for the initial adoption of REAL. This strategy should be used by other campuses, particularly at the beginning when assessment plans will need to be improved. College deans should adopt a similar model where they review assessment plans on an annual basis. This dean group should also promote and support collaboration across colleges and departments on assessment research projects.

Research Credit for Assessment Work

Assessment projects should be viewed as scholarly activity, because research is viewed as the most valuable activity on a college campus. Faculty could engage in projects to improve student learning that would certainly be important educational research. Of course, the institution would probably need to modify the criteria for promotion and tenure to effect this change.

Develop Awards for Assessment & Improvement

Faculty need incentives to value assessment. An institution should develop specific rewards for assessment activities, such as "the department with the most outstanding improvement" or faculty members with the "most important student learning project."

Reward Faculty for Doing Assessment Work

In addition to specific university awards, faculty doing assessment should have opportunities for release time, travel to conferences, special fellowships, etc.

Give the OK to Not be Perfect

Fear of imperfect assessment plans, embarrassment and failure keep faculty from trying new assessment methods, especially in the classroom. They have to be assured that it is OK to fail, to get poor faculty evaluations, etc., in order to take the risk.

Put Your Money Where Your Mouth Is

If the administration says that assessment work is important, then they have to support it financially. You cannot ask people to take on something else in addition to everything else they are already doing and expect them to go beyond lip service to it.

They have to get support, whether it is release time, additional personnel, training, etc., and that costs money.

Make Assessment Relevant to the Work of Professors

Both formal and informal conversations in departmental, committee and other faculty gatherings need to be about how assessment can improve the institution and its units, especially the curriculum, and how they can gather evidence to give direction for improvement. The chairs and the deans need to make this happen, with much support from the President and Provost.

Change the Institution

Ideally, the institution will change in a positive direction with assessment over time. The faculty ways of thinking will change so that they value assessment and assume responsibility for it. This will change the culture at the institution so that assessment is a common practice and how things are done on campus. The institution will then become a learning organization, always learning about it strengths and weaknesses and making improvements based on evidence.

Monitor the Changes

Not only is it necessary to track improvements in student learning and the college programs, but the macroscopic impact also needs to be monitored. How has the assessment system affected the curricula, teaching practices, campus policies, budgets and institutional structures? How has it affected the ways that campus personnel converse and interact and the language they use? How has it affected relationships with university

stakeholders? The answers to these questions would provide a comprehensive picture of how and to what extent the assessment system has changed the institution and its culture.

Conclusions

REAL was adopted at MSU by a small proportion of faculty members who were required to use it. These adopters also received training in using REAL and served on assessment committees. Thus, they not only knew how to use REAL but understood its value to their programs and colleges. However, the majority of faculty members were not REAL users. Although the infrastructure of REAL could have certainly been improved, the lack of faculty adoption was not the fault of the assessment system. A large part of the problem was the incompatibility of a centralized assessment system with the faculty culture of autonomy. The change strategies and associated support systems that might have changed this culture and facilitated more widespread faculty participation were not sufficiently in place at MSU.

The non-adopters did not know about REAL, were too busy with other faculty work to pay attention to it or were angry about it, even hostile. This situation was not unique to MSU. Other campuses and faculties report the same attitudes. In general, faculty do not like to be told what to do and may become angry when they are asked to do something they believe is not valued by the academy. This is particularly true of a research intensive university such as MSU. Faculty members are happiest when they are left alone by the "administration." This culture flies in the face of a centralized assessment system.

The dream of the Director of Assessment for REAL to serve as an institutional learning system was a good one. He wanted to change the underlying assumptions of the MSU culture so that REAL was valued for how it could improve teaching and learning. He trained the trainers, individuals responsible for REAL work and hoped they would train the rest of the faculty. He also hoped that REAL would be used by the departments to plan and improve their curriculum and by the faculty for collaborative research projects on student learning.

REAL has the potential to make MSU a leader in assessment and a learning organization, with faculty assuming collective responsibility for student learning and improving the curriculum. The Director of Assessment was very optimistic, patient and persistent, and he had a number of leaders who believed in his dream. So, the dream may still be realized down the road. The recommendations offered in this report for implementing an assessment system will hopefully assist other institutions in getting the right strategies in place for successful implementation of a centralized assessment system.

References

Angelo, T. A. (1995). Reassessing (and defining) assessment. *The AAHE Bulletin, 48*(2), 7-9.

Angelo, T. A. (1999). Doing assessment as if learning matters most. *AAHE Bulletin, 51*(9), 3-6.

Angelo, T. A. (2004). *Making assessment into scholarly work*. Paper presented at the 4th Annual Texas A&M University Assessment Conference, College Station, TX.

Astin, A. (1991). *Assessment for excellence*. Phoenix: Oryx.

Astin, A. W., Banta, T. W., Cross, K. P., El-Khawa, E., Ewell, P. T., Hutchings, P., et al. (1992). *Principles of good practice for assessing student learning*. Washington, DC: American Association for Higher Education.

Astin, A. W., Gamson, Z. F., Blake, J. H., Hodgkinson, H. L., Bowen, H. R., Lee, B., et al. (1984). *Involvement in learning: realizing the potential of American higher education*. Washington DC: Study Group on the Conditions of Excellence in American Higher Education of the National Institute of Education.

Babyak, S., & Glickman, J. (2005). Secretary spellings announces new commission on the future of higher education, *ED.gov*: U.S. Department of Education.

Banta, T. B. (2005a). What draws campus leaders to embrace outcomes assessment? *Assessment Update, 17*(5), 4, 14-15.

Banta, T. B. (2005b). Leaders' views on engaging stakeholders in assessment. *Assesssment Update, 17*(6), 3, 15-16.

Banta, T. B. (2006). SUNY's general education assessment initiative. *Assessment Update, 18*(1), 3, 15-16.

Barr, R. B., & Tagg, J. (1995). From teaching to learning—A new paradigm for undergraduate education. *Change, 27*(6), 13-19.

Bender, K. K., & Siller, T. J. (2006). How an engineering college uses a university's quality enhancement system to generate and manage evidence for multiple accreditation and accountability bodies. *Quality in Higher Education, 12*(2), 175-191.

Bok, D. (2006). *Our underachieving colleges: A candid look at how much students learn and why they should be learning more*. Princeton, NJ: Princeton University Press.

Brown, M., Keeton, M., & McMorrow, J. (1998). *Assessing learning outcomes: Executive summary*. Houston: American Productivity & Quality Center.

Carnevale, D. (2007). New software aids in assessment. *Chronicle of Higher Education, 53*(30), 1-4. Retrieved March 30, 2007, from http://chronicle.com/weekly/v53/130/30a0371.htm

Carter, L., & Belanger, F. (2005). The influence of perceived characteristics of innovating on e-government adoption [Electronic Version]. *EJEG (Electronic Journal of e-Government), 3,* 1-13. Retrieved January 23, 2006, from http://www.ejeg.com/volume-2/volume2-issue-1/v2-i1-art2.htm.

Colorado State University. (2005). *Setting the standard for the 21st century: Strategic directions for 2006-2015.* Fort Collins, CO: Author.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks: Sage.

Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method*. New York: John Wiley & Sons.

Dooley, K. E., & Murphrey, T. P. (2005, Winter). How the perspectives of administrators, faculty and support units impact the rate of distance education adoption. *Journal of Distance Learning Administration, 34,* 1-9. Retrieved September 23, 2005, from http://www.westga/~odjla/winter34/dooley34.html

Eckel, P. D., & Kezar, A. (2003). *Taking the reins: Institutional transformation in higher education*. Westport CT: Praeger.

El-Khawas, E., & Knopp, L. (1996). *Campus trends 1996*. Washington DC: American Council on Education.

Engelkemeyer, S. W., & Brown, S. C. (1998). Powerful partnerships: A shared responsibility for learning. *AAHE Bulletin, 51*(2), 10-12.

Engelkemeyer, S. W., & Landry, E. (2001). Negotiating change on campus. *AAHE Bulletin, 53*(6), 7-10.

Engelkemeyer, S. W., & Moses, Y. T. (2002). Emerging strategies. *AAHE Bulletin*, *54*(7), 12-13.

Ewell, P. T. (1991). To capture the ineffable: new forms of assessment in higher education. In D. Wolf & J. Bixby (Eds.), *Review of research in education* (pp. 75-125). Itasca, IL: F.E. Peacock.

Ewell, P. T. (1997). Organizing for learning. *AAHE Bulletin, 50*(4), 3-6.

Ewell, P. T. (2005). Looking back on "the year of accountability." *Assessment Update, 17*(5), 9-11.

Fendrich, L. (2007). A pedagogical straitjacket. *The Chronicle of Higher Education, 53*(40), 1-5.

Gibralter, J., & Cepriano, L. (2006). General education assessment at Farmingdale State University: Creating a central core of educational values. *Assessment Update, 18*(1), 8-9.

Gravetter, F. J., & Wallnau, L. B. (2000). *Statistics for the behavioral sciences* (5th ed.). Belmont, CA: Wadsworth.

Hebert, M., & Benbasat, I. (1994). Factors influencing the adoption of "bedside terminals" by nursing staff: a field study of the diffusion of innovations in hospitals. *Hospital and Health Services Administration, 39*(3), 369-383.

Higher Learning Commission (The). (2003). *Handbook of accreditation*. Chicago: North Central Association. Retrieved August 14, 2007, from http://www.ncahlc.org/download/Handbook03.pdf

Hutchings, P. A., & Marchese, T. J. (1990). Assessing curricular outcomes- the US experience. *Higher Education Management, 2*(1), 20-26.

Kezar, A., & Eckel, P. D. (2002a). Examining the institutional transformation process: The importance of sensemaking, interrelated strategies, and balance. *Research in Higher Education, 43*(3), 295-328.

Kezar, A., & Eckel, P. D. (2002b). The effect of institutional culture on change strategies in higher education. *Journal of Higher Education, 73*(4), 435-460.

Kezar, A. J. (2001). *Understanding and facilitating organizational change in the 21st century*. San Francisco: Jossey-Bass.

Kouzes, J. M., & Posner, B. Z. (1995). *The leadership challenge*. San Francisco: Jossey-Bass.

Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2005a). Never let it rest. *Change, 37*(4), 44-51.

Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E., J. (2005b). *Student success in college*. San Francisco: Jossey-Bass.

Lederman, D. (2006a). Consensus in short supply [Electronic Version]. *Inside Higher Ed. 05,* 19. Retrieved May 16, 2006, from http://insidehighered.com/news/2006/05/19/commission.

Lederman, D. (2006b). The hurdles ahead. *Inside Higher Ed. 05,* 22. Retrieved May 16, 2006, from http://insidehighered.com/news/2006/05/22/commission.

Leitzel, J., Corvey, C., & Hiley, D. (2004). Integrated planning and change management at a research university. *Change, 36*, 36-43.

McCann, A. (2006). *2004-2005 annual report of Baylor College of Dentistry*. Dallas: Baylor College of Dentistry.

McDonald, J. G., Ewell, P. T., & Jones, D. (1986). *Time for results: The Governors' 1991 report on education. Supporting works. Task force on college quality.* Washington, DC: National Governors' Association.

Middle States Commission on Higher Education. (2006). *Characteristics of excellence in higher education*. Philadelphia: Author. Retrieved on August 14, 2007, from http://www.msche.org/publications/CHX06060320124919.pdf

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousands Oaks, CA: Sage.

Moore, G. C. (1989). *An examination of the implementation of information technology for end users: a diffusion of innovations perspective.* Unpublished Doctoral Dissertation, The University of British Columbia, Vancouver.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2*(3), 192-222.

Moore, G. C., & Benbasat, I. (1995, October). *Integrating diffusion of innovations and theory of reasoned action models to predict utilization of information technology by end-users.* Paper presented at the Diffusion and Adoption of Information Technology Conference, Oslo, Norway.

Plouffe, C. R., Hulland, J. S., & Vandenbosch, M. (2001). Research report: Richness versus parsimony in modeling technology adoption decision-understanding merchant adoption of a smart card-based payment system. *Information Systems Research, 12*(2), 208-222.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Rossmann, J. E., & El-Khawas, E. (1987). *Thinking about assessment: Perspectives for presidents and chief academic officers*. Washington, DC: American Council on Education and the American Association for Higher Education.

Schein, E. (2004). *Organizational culture and leadership*. San Francisco: Jossey-Bass.

Schray, V. (2006). Assuring quality in higher education: Recommendations for improving accreditation. *Ed gov* 1-8, Fourteenth Issue Paper of the Commission on the Future of Higher Education. Retrieved August 14, 2006, from http://www.ed.gov/about/bdscomm/list/hiedfuture/reports.html

Senge, P. M. (1990). *The fifth discipline*. New York: Currency Doubleday.

Shapiro, H. N. (2006). Promotion & tenure & the scholarship of teaching & learning. *Change, 38*(2), 39-43.

Southern Association of Colleges and Schools (2001). *Principles of accreditation: foundations for quality enhancement*. Decatur, GA: Author. Retrieved August 14, 2007, from http://www.sacscoc.org/pdf/PrinciplesOfAccreditation.PDF

SPSS. (2001). *Advanced statistical analysis using SPSS*. Chicago: SPSS Inc.

Spuches, C. M., Gray, P. J., Raynal, D. J., & Shannon, S. S. (2006). A planned-change perspective on faculty-driven general education assessment. *Assessment Update, 18*(1), 4-5.

Strout, E. (2007, June 25). $50-million donor to U. of Michigan will review performance as part of gift. *Chronicle of Higher Education News Blog.* Retrieved June 26, 2007, from http://chronicle.com/news/article/2565/50-million-donor-to-u-of-michigan-will-review-performance-as-part-of-gift

Sutton, R. E. (2005). Assessment of student learning: moving from compliance to internalization. *Assessment Update, 17*(6), 4-5, 12.

Swenson, C. (1998). Customers & markets: The cuss words of academe. *Change, 30*(5), 34-39.

Tashakkori, A., & Teddlie, C. (Eds.). (2003). *Handbook of mixed methods in social & behavioral research*. Thousand Oaks: Sage.

Tornatzky, L. G., & Klein, R. J. (1982). Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management*, EM-29, 28-45.

U.S. Department of Education. (2006a). Four pillars of NCLB. *Ed.gov*. Retrieved May 22, 2006, from http://www.ed.gov/nclb/overview/intro/4pillars.html.

U.S. Department of Education. (2006b). A test of leadership: charting the future of U.S. higher education. *Ed.gov*. 1-76. Retrieved March 20, 2007, from http://www.ed.gov/about/bdscomm/list/hiedfuture/reports.html

U.S. Department of Education. (2005). Secretary Spellings announces new commission on the future of higher education. *Ed.gov.* Retrieved May 23, 2006, from http://www.ed.gov/news/pressreleases/2005/09/09192005.html

Walvoord, B. E., & Anderson, V. J. (1998). *Effective grading*. San Francisco: Jossey-Bass.

Western Association of Colleges and Schools. (2001). *WASC 2001: handbook of accreditation*. Alameda, CA: Author. Retrieved August 14, 2007, from http://www.wascsenior.org/wasc/Doc_Lib/2001%20Handbook.pdf

Weiner, C. S., & McMillan, D. N. (2005). Transforming the assessment culture through the use of assessment specialists at a regional university. *Assessment Update, 17*(6), 6-8.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed., vol. 5). Thousand Oaks, CA: Sage.

Appendix A

REAL Assessment Plan

PROGRAM IMPROVEMENT RESEARCH PLAN

College: **Liberal Arts**
Department/Unit: **Art**
Program: ***BA Art: Art Education***
Period: 11 **Sep 2005 - Dec 2006**
Previous Plan: **Yes. See it**
Plan Status: **Report Results**
Current Date/Time: **August 1, 2007 8:16 AM**
Contact Person:
Contact Phone:

Report Results

This is the time to review how effectively you executed the plan. Enter your results, planned improvements, and future resources requested to execute the improvements.

This plan currently has 5 outcomes.

Move To: Outcome 1 Outcome 2 Outcome 3 Outcome 4 Outcome 5

This plan has 4 best practices.

General Plan Information	
Institutional Mission Linkages: MSU's Mission	The University continues to make education and training accessible to deserving applicants from all classes and groups, and maintains a wide range of research, extension, and public service programs in response to the needs of the people of Colorado, the nation, and the world.
Institutional Strategic Planning Linkages: MSU's Mission Strategic Plan	Key Strategy One: Undergraduate Education 1.9 Program Assessment Key Strategy Four: Diversity 4.4 Community Partnerships Key Strategy Seven: Civic Education and Civic Renewal 7.3 Enhance Academic Experiences

	7.8 Engage in Public Dialogue
College Planning Goals or Mission Statement Linkages: **Liberal Arts 's Mission**	This program supports the College's commitment to develop and maintain programs in the liberal arts that provide an understanding of people, their cultures, histories, literatures, philosophies, media, and arts.
Program Purpose:	The BA-Art Education program embraces the artist-teacher concept, which allows students to develop a studio concentration while preparing to teach at the P-12 level. Students integrate studio, art history, criticism, and aesthetics as they observe and teach--in a variety of experiences--in the public schools and other community venues.
Program Administration of Assessment Process:	The program supports engagement of students in the process with the following methods. Student learning outcomes are given to students on course syllabi for all art education classes. At the end of the semester students present a review of their learning (using the Teacher Work Sample model) and provide feedback to instructors on what content areas have been successfully addressed and what content areas in the program need to be addressed in greater detail. For example, creating plans for the divergent learner and classroom management are two areas that students have asked to be addressed in the last round of assessment. Also, students self-assess their learning weekly through directed journal reflections, which are used to address student learning and make course adjustments on a weekly basis.

Outcome 1 Student Learning / Development	Last modified on: 09/27/05 Classify Outcome	PREVIOUS NEXT

Description & Methodology

Outcome
Students will demonstrate effective self-reflection and analysis of their teaching to make appropriate changes for more effective instruction.

Process Used to Develop the Outcome Performance (Strategy)
Revise, refine, and teach a variety of reflection processes and introduce to students in the first art education course--AR325. Work to develop mapping techniques that allow students to see their (teaching) progress over time.

Assessment Method(s)
Teacher Work Sample. The TWS assesses students on planning, instruction, and analyzing. In planning students must: develop the teaching setting and context by describing the school, students, curriculum, and the topic(s) taught; develop appropriate objectives and identify standards addressed in the lesson; pre-assess students to find out what they know; develop and write goals and lesson plans. During instruction students must: teach the lessons with competence and quality and post-assess student learning. In analyzing students must: record assessment data; analyze pre and post assessment data to determine the learning achieved; interpret, discuss, and critique the teaching/learning experience; project results to future planning and teaching. Using the TWS rubric the assessment is divided into the following point structure: Setting and Context-5 points; Unit Topic and rationale-5 points; Standards, Goals and Objectives -15 points; Instructional Plan-20 points; Assessment-20 points; Summary, Interpretation, Reflection-30 points, Organization and Presentation-5 points. There are a total of 100 possible points. TWS results will be used when reviewing course content for AR325 (Concepts in Art Education), AR326 (Art Education Studio), and ED466 (Methods in Assessment in K-12 Art Education). Curricular changes will be made to address areas of weakness in the program based on TWS results."

Expected Performance Level
13% of students will score 95 points or better. 87% will score 80 points or better.

Outcome 2 Student Learning / Development	Last modified on: 09/27/05 Classify Outcome	PREVIOUS	NEXT

Description & Methodology

Outcome
Graduates will demonstrate an understanding of the content of art enabling them to teach art at the K-12 level. This knowledge is divided into three subareas. Art Materials & Processes, Composition and Unity, and Art and Culture.

Process Used to Develop the Outcome Performance (Strategy)
Offer a series of workshops to address any deficiencies in K-12 art content. Survey participants and adjust workshop content according to the needs of the students.

Assessment Method(s)
The P.L.A.C.E. (Program for Licensing Assessments for Educators) assessment in art. The assessment is criterion referenced, objective based, and developed with input from art educators in the state of Colorado. The assessment is divided into three areas identified in Outcome 1: Composition and Unity, Art and Culture, and Art Materials and Processes. P.L.A.C.E. results will be used when reviewing course content for AR325 (Concepts in Art Education), AR326 (Art Education Studio), and ED466 (Methods in Assessment in K-12 Art Education). Curricular changes will be made to address areas of weakness in the program based on P.L.A.C.E. results."

Expected Performance Level
83% of students will pass the P.L.A.C.E. assessment for art in the first attempt. 100% will pass after a second attempt.

Results & Evaluation

Data Summary & Evaluation

Program Improvements

Supplemental Materials

Outcome 3 Student Learning/Development	Last modified on: 09/27/05 Classify Outcome		PREVIOUS NE

Description & Methodology

Outcome
Graduates demonstrate that they are able to integrate literacy and numeracy in the art lessons they develop for their students.

Process Used to Develop the Outcome Performance (Strategy)
Bring in guest speakers to AR325, AR326, and ED466 that are recognized in the field of art education for integrating numeracy and literacy in their teaching.

Assessment Method(s)
Teacher Work Sample. Evaluate the Standards, Goals and Objectives and Instructional Plan sections of the TWS to determine if one lesson in each unit integrates literacy or
numeracy in its objectives and procedures at both the elementary and secondary levels. A 5-point scale will be used to rate the quality of the TWS integration section on literacy/numeracy based on the following criteria: 1) student outcomes are defined, 2) instructional decisions identified and justification provided based on theory, and 3) description of literacy and numeracy content integrated into lesson provided.

Expected Performance Level
95% of students will develop at least one art lesson incorporating literacy and numeracy for each unit developed in the Teacher Work Sample.

Results & Evaluation

Data Summary & Evaluation

Program Improvements

Supplemental Materials

Outcome 4
Faculty Research / Scholarship

Last modified on: 09/27/05
Classify Outcome

◀PREVIOUS NEXT▶

Description & Methodology

Outcome
Expand the quality of studio faculty exhibitions and/or appropriate creative involvement to increase visibility and reputation of CSU art department.

Process Used to Develop the Outcome Performance (Strategy)
Share information with faculty about the newly created Research and Artistry Support Center. This venue will provide faculty with new sources of support for artistry and possible exhibition venues.

Assessment Method(s)
Faculty report the number and type of exhibitions and/or publications on a yearly activity audit. Level of activity will be rated on a scale of 1 to 5 based on type of exhibition (group, one-person, etc.), locale of exhibition (international, national, regional, local) and reputation of juror, when appropriate. Results will be compiled and reviewed by the Chair and departmental advisory committee which will make recommendations to direct faculty research/creative involvement in the future.

Expected Performance Level
Establish a baseline and increase annually by 3%

Results & Evaluation

Data Summary & Evaluation

Program Improvements

Supplemental Materials

Outcome 5 Faculty Service / Outreach	Last modified on: 09/27/05 Classify Outcome	PREVIOUS NEXT

Description & Methodology

Outcome
Develop infrastructure to support diverse community service efforts by art faculty in partnership with students.

Process Used to Develop the Outcome Performance (Strategy)
Advise students of internship opportunities during their first advising appointment as freshmen and coordinate with SOVA (Student Organization for the Visual Arts) for continued exposure to internship opportunities during their tenure in the department.

Develop an assessment for community agencies to evaluate student participation.

Assessment Method(s)
Data collection activity will occur annually to track the following: 1) number of faculty involved, 2) number of students, 3) number of participating community members and 4) number of activities offered.

Expected Performance Level
Service learning placements should offer students the opportunity to work with P-12 and adult populations.

Results & Evaluation

Data Summary & Evaluation

Program Improvements

Supplemental Materials

Best Practices		
Best Practice 4/28/2006 12:40 PM		Plan Component *Assessment Method: Student Learning* Outcome 1 Best Practices Assessment used as instruction Student self-reflection/assess Assessment Method(s) Teacher Work Sample. The TWS assesses students on planning, instruction, and analyzing. In planning students must: develop the teaching setting and context by describing the school, students, curriculum, and the topic(s) taught; develop appropriate objectives and identify standards addressed in the lesson; pre-assess students to find out what they know; develop and write goals and lesson plans. During instruction students must: teach the lessons with competence and quality and post-assess student learning. In analyzing students must: record assessment data; analyze pre and post assessment data to determine the learning achieved; interpret, discuss, and critique the teaching/learning experience; project results to future planning and teaching. Using the TWS rubric the assessment is divided into the following point structure: Setting and Context-5 points; Unit Topic and rationale-5 points; Standards, Goals and Objectives -15 points; Instructional Plan-20 points; Assessment-20 points; Summary, Interpretation, Reflection-30 points, Organization and Presentation-5 points. There are a total of 100 possible points. TWS results will be used when reviewing course content for AR325 (Concepts in Art Education), AR326 (Art Education Studio), and ED466 (Methods in Assessment in K-12 Art Education). Curricular changes will be made to address areas of weakness in the program based on TWS results.
Best Practice 4/28/2006 1:34 PM		Plan Component *Assessment Method: Student Learning* Outcome 2 Best Practice Acad. Plan Links To Teach Educ

		The P.L.A.C.E. (Program for Licensing Assessments for Educators) assessment in art. The assessment is criterion referenced, objective based, and developed with input from art educators in the state of _____. The assessment is divided into the four areas identified in Outcome 1: Composition and Unity, Art and Culture, Art Materials and Processes, Art Education Methodology. P.L.A.C.E. results will be used when reviewing course content for AR325 (Concepts in Art Education), AR326 (Art Education Studio), and ED466 (Methods in Assessment in K-12 Art Education). Curricular changes will be made to address areas of weakness in the program based on P.L.A.C.E. results."
Best Practice 4/28/2006 2:37 PM		Plan Component *Assessment Method: Research or Outreach* Outcome 4 Best Practice Monitors impact indicators Assessment Method: Faculty report the number and type of exhibitions and/or publications on a yearly activity audit. Level of activity will be rated on a scale of 1 to 5 based on type of exhibition (group, one-person, etc.), locale of exhibition (international, national, regional, local) and reputation of juror, when appropriate. Results will be compiled and reviewed by the Chair and departmental advisory committee which will make recommendations to direct faculty research/creative involvement in the future.
Best Practice 4/28/2006 2:57 PM		Plan Component Strategies & Process: Research or Outreach Outcome 4 Best Practice College-Wide strategy used Process Used to Develop the Outcome Performance (Strategy) Share information with faculty about the newly created Research and Artistry Support Center. This venue will provide faculty with new sources of support for artistry and possible exhibition venues.

Appendix B

Electronic Survey

Factors Influencing the Diffusion of an Assessment Innovation

IRB # 2006-10-064 EX

I am asking you to participate in a research project entitled "The Identification of Factors that Influenced the Diffusion of an Assessment Innovation on a University Campus." The purpose of the research is to evaluate REAL, the Plan for Researching Improvement and Supporting the Mission. As you probably know, REAL is MSU's institution-wide assessment system for measuring student learning, as well faculty research and service. The information you provide in the this survey will help MSU find out how to improve REAL and its use by campus personnel.

You were selected to participate in this project, because you are in the unique position of having access to REAL and being able to evaluate its characteristics and uses. We are asking many campus faculty members to participate in this study. Participation in this project will require you to complete a survey which will take no more than 15 minutes of your time.

Your answers will be completely confidential and will be released only as summaries in which no individual's answers can be identified. There are no known risks or discomforts associated with this research. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska or Colorado State University. Your decision will not result in any loss or benefits to which you are otherwise entitled.

This survey is part of my PhD dissertation project for the University of Nebraska-Lincoln. If you have any questions, please contact me, Ann McCann, at 214-828-8407 or email me at amccann@bcd.tamhsc.edu. You can also contact the secondary investigator, Dr. Larry Dlugosh, at 402-472-0975 or ldlugosh@unlserve.unl.edu.

If you have any questions about your rights as a research participant that have not been answered by the investigator or want to report any concerns about the study, you may contact the University of Nebraska-Lincoln Institutional Review Board at 402-472-6965.

Please indicate if you agree to participate in this study.

[ ]I agree to participate in this study.
[Choose if appropriate]

Factors Influencing the Diffusion of an Assessment Innovation Survey

Demographics

Directions: Use the "next" and "back" buttons at the page bottom to navigate through the survey. The "finish" button on the last page will allow you to submit the survey. Use the "save" button when you wish to finish the survey at a later time; add the page to your "favorites" or bookmark it.

What college are you in?

[Choose one]

( ) Agricultural Sciences
( ) Applied Human Sciences
( ) Business
( ) Engineering
( ) Liberal Arts
( ) Natural Sciences
( ) Veterinary Medicine & Biomedical Sciences
( ) Natural Resources

What department/office are you in?

[Choose one]

( ) Agricultural & Resource Economics
( ) Animal Sciences
( ) Bioagricultural Sciences & Pest Management
( ) Horticulture & Landscape Architecture
( ) Soil & Crop Sciences
( ) Construction Management
( ) Design & Merchandising
( ) Food Science & Human Nutrition
( ) Health & Exercise Science
( ) Human Development & Family Studies
( ) Occupational Therapy
( ) School of Education
( ) School of Social Work
( ) Accounting
( ) Computer Information Systems
( ) Finance & Real Estate
( ) Management
( ) Marketing
( ) Atmospheric Science
( ) Chemical & Biological Engineering
( ) Civil & Environmental Engineering

( ) Electrical & Computer Engineering
( ) Mechanical Engineering
( ) Anthropology
( ) Art
( ) Economics
( ) English
( ) Foreign Languages & Literatures
( ) History
( ) Journalism & Tech Communication
( ) Music, Theatre & Dance
( ) Philosophy
( ) Political Science
( ) Sociology
( ) Speech Communication
( ) Biochemistry & Molecular Biology
( ) Biology
( ) Chemistry
( ) Computer Science
( ) Mathematics
( ) Physics
( ) Psychology
( ) Statistics
( ) Biomedical Sciences
( ) Clinical Sciences
( ) Environmental & Radiological Health Sciences
( ) Microbiology, Immunology & Pathology
( ) Fish, Wildlife & Conservation Biology
( ) Forest, Rangeland & Watershed Stewardship
( ) Geosciences
( ) Natural Resource Recreation & Tourism
( ) Center for Applied Studies in American Ethnicity
( ) Center for Science, Mathematics & Technology

Are you assigned to enter assessment plans/results into REAL?
[Choose one]
( ) yes
( ) no

1. What is your gender?
[Choose one]
( ) Male
( ) Female

2. How long have you been an employee at MSU?
[Choose one]

( ) 1-5 years
( ) 6-10 years
( ) 11-15 years
( ) 16-20 years
( ) More than 20 years

3. What is your academic rank?
[Choose one]

( ) Assistant professor
( ) Associate professor
( ) Professor
( ) Other [ ]

Using REAL
REAL is MSU's institution-wide assessment system for tracking student learning, faculty research and service.

4. Have you served on an assessment committee, either for the campus, your College or your department?
[Choose one]

( ) yes
( ) no

5. Have you heard about REAL?
[Choose one]

( ) yes
( ) no

6. Have you gone online and viewed REAL?
[Choose one]

( ) yes
( ) no

7. Have you seen paper plans or reports from REAL?
[Choose one]

( ) yes
( ) no

8. Have you entered information/data into REAL ?
[Choose one]

( ) Yes
( ) no

Using REAL
REAL is MSU's institution-wide assessment system for tracking student learning, faculty research and service.

9. How have you used REAL? (check all that apply)
[Choose all that apply]
( ) for classroom teaching
( ) for department planning
( ) for curriculum development
( ) for program assessment
( ) for program review
( ) for accreditation
( ) for research projects about student learning
( ) documentation for promotion and tenure
( ) not at all
( ) Other [ ]

10. Estimate how often you have used REAL.
[Choose one]
( ) never
( ) 1-5 times
( ) 6-10 times
( ) 7-11 times
( ) 12-16 times
( ) 17-20 times
( ) more than 20 times

11. Has someone showed you how to use REAL?
[Choose one]
( ) yes
( ) no

12. Was training in REAL offered to you?
[Choose one]
( ) yes
( ) no

13. Did you participate in REAL training?
[Choose one]
( ) yes
( ) no

Using REAL
REAL is MSU's institution-wide assessment system for tracking student learning, faculty research and service.

14. Were you given an incentive or reward for using REAL?
[Choose one]
( ) yes
( ) no

14a. What incentive/reward did you receive? (choose all that apply)
[Choose all that apply]
( ) Increase in salary
( ) Faculty award
( ) Opportunity to attend workshop/conference
( ) Release time
( ) Public recognition
( ) Other [ ]

Adoption Strategies & Impact

15. What do you think is the most important use of REAL? (choose one)
[Choose one]
( ) for classroom teaching
( ) for department planning
( ) for curriculum development
( ) for program review
( ) for accreditation
( ) for research projects about student learning
( ) documentation for promotion and tenure
( ) Other [ ]

16. Has REAL helped you or your department improve teaching or student learning?
[Choose one]
( ) yes
( ) no

Adoption Strategies & Impact Continued

16a. How has REAL improved teaching or learning? (choose all that apply)
[Choose all that apply]

( ) improved teaching methods
( ) improved course content
( ) improved student evaluation methods
( ) improved student learning in courses
( ) Improved department goal setting
( ) improved department student learning results
( ) improved the facility
( ) other [ ]

Directions: Try to answer all these questions. If you have not used REAL, answer the questions based on what you know about REAL. If you absolutely cannot answer a question, then select "do not know."

Perceptions of REAL

Voluntariness

17. My chair and/or Dean does NOT require me to use REAL.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

18. Although it might be useful, using REAL is certainly NOT compulsory in my work.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Relative Advantage

19. Using REAL improves (would improve) the quality of my work.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

20. Using REAL makes (would make) it easier to do my work.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

21. Using REAL improves (would improve) my work performance.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

22. Using REAL enhances (would enhance) the effectiveness of my work.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

23. Using REAL gives (would give) me greater control over my work.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

24. Using REAL helps (would help) me plan and improve student learning.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

25. Using REAL provides (would provide) me with new ideas for assessing and improving student learning.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Compatibility

26. Using REAL is (would be) compatible with all aspects of my work.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

27. I think using REAL fits (would fit) well with the way I like to work.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

28. Using REAL fits (would fit) into my work style.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Image

29. People at MSU who use REAL have more prestige than those who do not.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

30. People at MSU who use REAL have a high profile.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

31. Using REAL is a status symbol at MSU.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Ease of Use

32. Using REAL is (would be) often frustrating.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

33. I believe that it is easy to get REAL to do what I want it to do.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

34. Learning to use REAL is (would be) easy for me.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

35. Overall, I believe that REAL is easy to use.
[Choose one]
( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Result demonstrability

36. I would have no difficulty telling others about the results of using REAL.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

37. I believe I could communicate to others the consequences of using REAL.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

38. The results of using REAL are apparent to me.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

39. I would have difficulty explaining why using REAL may or may not be beneficial.

[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Visibility

40. At MSU, one sees many people using REAL.

[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

41. REAL is not very visible at MSU.

[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

Trialability

42. I know where I can go to satisfactorily try out various uses of REAL
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

43. Before deciding whether to use any REAL applications, I was able (would be able) to properly try them out.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

44. I was (am) permitted to use REAL on a trial basis long enough to see what it could/can do.
[Choose one]

( ) strongly agree
( ) agree
( ) somewhat agree
( ) neutral
( ) somewhat disagree
( ) disagree
( ) strongly disagree
( ) do not know

What Do You Think?

45. What would increase or improve your use of REAL?
[Enter answer in paragraph form]

Click on "finish" below to submit your survey.

Appendix C

Rotated Component Matrix from Factor Analysis

Demonstrating Eight Distinct Scales

	Component							
	1- RA	**2- Ease**	**3-Results**	**4-Image**	**5-Compat**	**6-Trial**	**7-Vol**	**8-Visible**
22. Using REAL enhances (would enhance) the effectiveness of my work.	.904	.149	.114		.261			
21. Using REAL improves (would improve) my work performance.	.860	.117	.167	.204	.162	.115		
25. Using REAL provides (would provide) me with new ideas for assessing and improving student learning.	.833	.127	.199			.212		.115
24. Using REAL helps (would help) me plan and improve student learning.	.832	.239	.210		.158	.158		.169
19. Using REAL improves (would improve) the quality of my work.	.824	.159	.148		.382			
23. Using REAL gives (would give) me greater control over my work.	.637	.212	.183	.289	.335			.235
35. Overall, I believe that REAL is easy to use.	.242	.883	.113		.149	.162		
34. Learning to use REAL is (would be) easy for me.	.208	.814	.165			.203	-.100	-.278
33. I believe that it is easy to get REAL to do what I want it to do.	.387	.807	.127		.150			.136

	Component							
	1- RA	2- Ease	3-Results	4-Image	5-Compat	6-Trial	7-Vol	8-Visible
32. Using REAL is (would be) often frustrating.		-.751	-.101		-.316	-.100		-.287
37. I believe I could communicate to others the consequences of using REAL.	.141	.105	.889			.115		.198
36. I would have no difficulty telling others about the results of using REAL.	.228	.210	.818		.156	.203		
38. The results of using REAL are apparent to me.	.274		.775	.116	.151	.103	-.273	.138
39. I would have difficulty explaining why using REAL may or may not be beneficial.	-.161	-.215	-.755		-.179		-.123	-.205
31. Using REAL is a status symbol at MSU.				.924	.127			
29. People at MSU who use REAL have more prestige than those who do not.	.167			.919	.115		.148	
30. People at MSU who use REAL have a high profile.			.131	.888		.109		
26. Using REAL is (would be) compatible with all aspects of my work.	.310		.272	.179	.792	.122		
28. Using REAL fits (would fit) into my work style.	.431	.346	.185		.746			

	Component							
	1- RA	2- Ease	3-Results	4-Image	5-Compat	6-Trial	7-Vol	8-Visible
27. I think using REAL fits (would fit) well with the way I like to work.	.436	.305	.196		.744	.117		
20. Using REAL makes (would make) it easier to do my work.	.461	.163		.262	.611*	.195		
43. Before deciding whether to use any REAL applications, I was able (would be able) to properly try them out.	.149	.201	.102	.131		.866		.102
44. I was (am) permitted to use REAL on a trial basis long enough to see what it could/can do.	.200			.100	.228	.743	.309	
42. I know where I can go to satisfactorily try out various uses of REAL	.210	.230	.152			.651	-.273	.367
18. Although it might be useful, using REAL is certainly NOT compulsory in my work.							.922	-.123
17. My chair and/or Dean does NOT require me to use REAL.			-.114	.135			.901	-.122
41. REAL is not very visible at MSU.			-.317				.168	-.866
40. At MSU, one sees many people using REAL.	.251		.184	.159		.391	-.182	.766

*Question 20 was a “relative advantage” item but factored into “compatibility”

Appendix D

Advance Notice Email Letter for Survey

October 2006

Dear Dr. (faculty member),

A few days from now you will receive an email request to complete an online questionnaire for an important research project being conducted at Colorado State University. The primary purpose is to collect your opinions about REAL, the Plan for Researching Improvement and Supporting the Mission. As you probably know, REAL is MSU's institution-wide database for measuring student learning during their educational experience, as well faculty research and service.

I am writing to you in advance, because we have found that people like to know ahead of time that they will be surveyed. The study is important, because it will help MSU find out how to improve REAL and its use by campus personnel. However, your participation in this study is completely voluntary.

This survey is my PhD dissertation project for the University of Nebraska-Lincoln. Thank you in advance for assisting us with this research.

Only with your help can this project be successful.

Sincerely,
Ann L. McCann, MS
University of Nebraska doctoral student
214-828-8407
amccann@bcd.tamhsc.edu

Appendix E

First Cover Email Letter for Survey

IRB#2006-10-064 EX

September 2006

Dear (faculty or staff member),

I am writing to ask you to participate in a research project entitled "The Identification of Factors that Influenced the Diffusion of an Assessment Innovation on a University Campus." The purpose of the research is to evaluate REAL, the Plan for Researching Improvement and Supporting the Mission. As you probably know, REAL is MSU's institution-wide database for measuring student learning, as well as faculty research and service. The information you provide in the attached survey will help MSU find out how to improve REAL and its use by campus personnel.

You were selected to participate in this project, because you are a faculty member who has access to REAL. You are in the unique position of being able to evaluate the characteristics and uses of REAL. We are asking many campus personnel to participate in this study.

Participation in this project will require you to complete a survey which will take no more than 15 minutes of your time. Your answers will be completely confidential and will be released only as summaries in which no individual's answers can be identified. There are no known risks or discomforts associated with this research. Your participation in this study is completely voluntary; you are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska or MSU. Your decision will not result in any loss or benefits to which you are otherwise entitled.

Please return this survey by _____.

This survey is my PhD dissertation project for the University of Nebraska-Lincoln. If you have any questions, I would be glad to answer them. Please call me at 214-828-8407 or email me at amccann@bcd.tamhsc.edu. You can also contact the secondary investigator, Dr. Larry Dlugosh, at 402-472-0975 or ldlugosh@unlserve.unl.edu. If you have any questions about your rights as a research participant that have not been answered by the investigator or to report any concerns about the study, you may contact the University of Nebraska-Lincoln Institutional Review Board, telephone (402) 472-6965.

Thank you for helping me with this important research project.

Sincerely,
Ann L. McCann, MS
University of Nebraska doctoral student
3302 Gaston Ave, Dallas, TX 75246
214-828-8407
amccann@bcd.tamhsc.edu

Appendix F

Thank You- Reminder Email Letter

October 2006

Last week I emailed a questionnaire to you seeking your opinion about the characteristics and uses of REAL.

If you have already completed and returned the questionnaire, please accept my sincere thanks. If not, please do so today. I really need your response, because only Colorado State University personnel can provide the perspective I need about how REAL is viewed and used.

If you did not receive a questionnaire, or cannot find it, please call me at 214-828-8407 or email her at amccann@bcd.tamhsc.edu. I will email another one to you.

Ann L. McCann, MS
University of Nebraska doctoral student
214-828-8407
amccann@bcd.tamhsc.edu

Appendix G

Second and Third Cover Email Letters for Survey

October 2006

Dear (faculty or staff member),

About three weeks ago, I emailed you a questionnaire that asked for your opinion about the characteristics and uses of REAL, Colorado State University's institution-wide database for measuring student learning and faculty research and service. This questionnaire is for a research project entitled "The Identification of Factors that Influenced the Diffusion of an Assessment Innovation on a University Campus." The comments of the MSU personnel who have already responded have provided valuable insight about how REAL is perceived. This information will suggest ways that MSU can improve REAL and its use by campus personnel.

I am writing again because of the importance that your questionnaire has for helping us get accurate results. Although I sent questionnaires to over 500 faculty members across the campus, it is only by hearing from everyone in the sample that we can be sure that the results are truly representative.

Participation in this project will require you to complete a survey which will take no more than 15 minutes of your time. Your answers will be completely confidential and will be released only as summaries in which no individual's answers can be identified. There are no known risks or discomforts associated with this research. Your participation in this study is completely voluntary; you are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska or MSU. Your decision will not result in any loss or benefits to which you are otherwise entitled.

Please return this survey by _____.

This survey is my PhD dissertation project for the University of Nebraska-Lincoln. If you have any questions, I would be glad to answer them. Please call me at 214-828-8407 or email me at amccann@bcd.tamhsc.edu. You can also contact the secondary investigator, Dr. Larry Dlugosh, at 402-472-0975 or ldlugosh@unlserve.unl.edu.

Thank you for helping me with this important MSU research project.

Sincerely,
Ann L. McCann, MS
University of Nebraska doctoral student
amccann@bcd.tamhsc.edu

Appendix H

UNL IRB Approval Letter

University of Nebraska Lincoln

HUMAN RESEARCH PROTECTIONS
Institutional Review Board

October 12, 2006

Ann McCann
Dr. Larry Dlugosh
Academic Affairs
Baylor College of Dentistry
3302 Gaston Avenue
Dallas TX 75246-2013

IRB# 2006-10-064 EX

TITLE OF PROJECT: **The Identification of Factors that Influenced the Diffusion of an Assessment Innovation on a University Campus**

Dear Ann:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. This project has been approved by the Unit Review Committee from your college and sent to the IRB. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study. Your proposal seems to be in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as exempt.

Date of EX Review: **10/10/06**

You are authorized to implement this study as of the Date of Final Approval: **10/12/06.** This approval is Valid Until: **10/11/07.**

1. Please include the assigned and approved IRB number on the emailed informed consent form and informed consent form posted on-line. Please return one copy of the form, with the number included, for our records.

2. If University issues you a final approval letter, please send a copy to us for our records.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board. For projects which continue beyond one year from the starting date, the IRB will request continuing review and update of the research project. Your study will be due for continuing review as indicated above. The investigator must also advise the Board when this study is finished or discontinued by completing the enclosed Protocol Final Report form and returning it to the Institutional Review Board.

If you have any questions, please contact Shirley Horstman, IRB Administrator, at 472-9417 or email at shorstman1@unl.edu.

Sincerely,

Dan R. Hoyt, Chair
for the IRB

Shirley Horstman
IRB Administrator

Appendix I

Interview Guide: Introductory Script & Questions

Introductory Script

My name is Ann McCann and I am a doctoral student at the University of Nebraska. Thank you for agreeing to be interviewed.

You are participating today in a research project entitled "The Identification of Factors that Influenced the Diffusion of an Assessment Innovation on a University Campus." The purpose of the research is to evaluate REAL, the Plan for Researching Improvement and Supporting the Mission. As you probably know, REAL is Colorado State University's institution-wide database for measuring student learning, as well as faculty research and service. The information you provide in this interview will help MSU find out how to improve REAL and its use by campus personnel.

You were selected to be interviewed, because you are a MSU employee who has access to REAL. Furthermore, you have been identified as an individual who has extensive experience with using REAL. So, you are in the unique position of being able to evaluate the characteristics and uses of REAL.

I will be asking you the seven questions I emailed to you earlier. I will be taping our conversation. I promise not to take more than one hour of your time.

Do you have any questions before I begin?

Interview Guide for Questioning

1. How was REAL introduced to you?

2. Do you have a clear understanding of the purpose of REAL?

3. What support did you get to implement REAL?

4. Was collaboration involved in implementing REAL?

5. Why did you decide to use REAL?

6. How have you used REAL?

7. Do you know how REAL has affected learning across the campus?

Appendix J

Notification Email Letter for Interview & Consent Form

You have been selected to participate in a telephone interview about REAL, the Plan for Researching Improvement and Supporting the Mission, because of your extensive experience with this system. As you know, REAL is Colorado State University's institution-wide database for measuring the extent and quality of student learning during their educational experience, as well as faculty research and service. Your participation in this interview may help MSU find out how to improve REAL and its use by campus personnel.

I have attached a consent form for you to review. The questions I will ask are indicated in "Procedures." Your participation in this study is completely voluntary; you are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska or Colorado State University.

Please email me and indicate if you are willing to participate in an interview. In your email response, write the following, **"I have read the consent form and I agree to participate in the telephone interview as described. I also agree to be audiotaped. I can be interviewed at the following three times……" in the next two weeks.** I will choose one and confirm the appointment time by email or telephone.

This interview is a part of my PhD dissertation project for the University of Nebraska-Lincoln. I truly appreciate your contribution to this important research project.

Ann McCann, MS, Principal Investigator
University of Nebraska doctoral student
Office: (214) 828-8407
amccann@bcd.tamhsc.edu

Larry Dlugosh, Ph.D., Secondary Investigator
Chair, Educational Administration
University of Nebraska Lincoln
Office (402) 472-0975
ldlugosh@unlserve.unl.edu

IRB#2006-10-064 EX

University of Nebraska Lincoln

INTERVIEW INFORMED CONSENT FORM

IRB# (Labeled by IRB)

Identification of Project:

The Identification of Factors that Influenced the Diffusion of an Assessment Innovation on a University Campus

Purpose of the Research:

This is a research project that will identify the factors that influence Colorado State University (MSU) personnel to use REAL. You must be 19 years of age or older to participate. You are invited to participate in this study because you are a faculty member or professional staff person at MSU.

Procedures:

Participation in this study will require you to participate in a telephone interview. It will take approximately one hour to complete. Here are the questions I will ask: (1) How was REAL introduced to you? (2) Do you have a clear understanding of the purpose of REAL? (3) What support did you get to implement REAL? (4) Was collaboration involved in implementing REAL? (5) Why did you decide to use REAL? (6) How have you used REAL? (7) Do you know how REAL has affected learning across the campus?

Our conversation will be audio taped and later transcribed; only I will hear the taped conversation. I will then analyze the transcriptions to identify consistent themes in your responses. You will only be identified by a pseudonym in any reporting of our discussion; neither your title or years of experience will be indicated.

Risks and/or Discomforts:

There are no known risks or discomforts associated with this research.

Benefits:

MSU will gain a measure of how well the assessment system has been adopted into daily practice. Also, MSU may gain some ideas as to how to improve the use of the assessment system.

Confidentiality:

Any information obtained during this study which could identify you will be kept strictly confidential. The data will be stored in a locked cabinet in the investigator's office and will only be seen by the investigator during the study and for three years after the study is complete. The information obtained in this study may be published in scientific journals or presented at scientific meetings but you will only be identified by a pseudonym; you will not be identified by title or years of experience. The audiotapes will be erased after transcription.

Opportunity to Ask Questions:

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may call the investigator at any time, office phone, (214) 828-8407, or after hours (214) 821-3153. If you have questions concerning your rights as a research subject that have not been answered by the investigator or to report any concerns about the study, you many contact the University of Nebraska-Lincoln Institutional Review Board, telephone (402) 472-6965.

Freedom to Withdraw:

You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators, the University of Nebraska or MSU. Your decision will not result in any loss or benefits to which you are otherwise entitled.

Consent, Right to Receive a Copy:

You are voluntarily making a decision whether or not to participate in this research study. You may print a copy of this consent form to keep.

Please email me and indicate if you are willing to participate in an interview. In your email response, write the following, "I have read the consent form and I agree to participate in the telephone interview as described. I also agree to be audiotaped."

Name and Phone Number of Investigator(s)

Ann McCann, MS, Principal Investigator — *Office: (214) 828-8407*
University of Nebraska doctoral student — *amccann@bcd.tamhsc.edu*

Larry Dlugosh, Ph.D., Secondary Investigator
Chair, Educational Administration — *Office (402) 472-0975*
University of Nebraska Lincoln — *ldlugosh@unlserve.unl.edu*

Appendix K

Interview Coding Scheme

Category	Abbreviation	Research Question
Voluntariness	M	1, 3a
M-Voluntary	M-V	
M-Accreditation	M-ACC	
M-Program Review	M-PR	
M-Accountability	M-ACT	
M- Strategic Plan	M-ST	
M-Other Mandates	M-NC	
Vision for REAL	V	3b, 3c, 4
V-The Dream (Dir Assessment)	V-DREAM	
V-Systematic Assessment	V-SA	
V-Marketing	V-MKT	
V-Transparency	V-TR	
V-Planning (including strategic)	V-PL	
V-Effectiveness & Improvement (closing loop)	V-E&I	
V-Student Learning & Curriculum Revision	V-SLCR	
V-Organizational Performance	V-OP	
V-Program Review	V-PR	
V-Customer Service	V-CS	
V- Miscellaneous	V-M	
Senior Administrative Support	SAS	1, 3b
SAS- Creating Director of Assessment Position	SAS-DAPOS	
SAS- Assistance from Dir Assessment & Staff	SAS-DA	
SAS- Technical Support	SAS-TS	
SAS- VPs, Provost, Deans, Assoc Deans (AAC)	SAS-LEAD	
SAS- Funding	SAS-FUND	
SAS- Release Time	SAS-RT	
SAS- Hiring Other Assess Leaders	SAS-OTHER	
SAS- Creating Supportive Policy & Processes	SAS-POLICY	
SAS- Lack of Support	SAS-NS	
SAS- Administrative Turnover	SAS-AT	
Collaborative Leadership	COLL	1, 2, 3b
COLL-w Director of Assessment	COLL-DA	
COLL- w Peer Review committees (AAC & SAAC)	COLL-PR	
COLL-w Deans	COLL-DEAN	
COLL- w Department	COLL-DEP	
COLL- Across College (depts.)	COLL-COLL	
COLL- w Another College, University or Company	COLL-OTHER	
COLL- Lack of Collaboration	COLL-LC	
Staff Development	SD	1, 3b,
SD- by Director of Assessment	SD-DA	
SD- by AAC	SD-AAC	
SD-Other Methods	SD-OTHER	
SD- Lack of Development	SD-LSD	
Visible Actions	VA	2, 3a, 3b, 4

Category	Abbreviation	Research Question
VA-Learning & Curriculum	VA-LEARN	
VA-Measure & Track Change	VA-TC	
VA-Judge Assessment Quality	VA-QUAL	
VA- Improvement	VA-IMP	
VA- Transparency/Marketing	VA-TR	
VA- Evidence	VA-EVID	
VA- Sharing/Modeling	VA-MDL	
VA- Lack of Visibility	VA-LV	
Relative Advantage	RA	1, 3a, 4
RA- Integrates w Other Planning	RA-INTEG	
RA- Not Paper	RA-PAPER	
RA- For Program Review	RA-PR	
RA- Tool for Improvement	RA-I	
RA- Teaching Tool	RA-TEACH	
RA- Communicate Quality	RA-QUAL	
RA- Multiple Purposes	RA-MP	
RA- For Accreditation	RA-ACC	
RA- For Career Development	RA-CD	
RA- Not Viewed as Means for Improvement	RA-LRA	
Compatibility w University Culture	COMP	2, 3a, 3b, 3c, 4
COMP- REAL Used at Other Campuses	COMP-USED	
COMP- Compatibility With Accreditation, Curriculum, Program Review & Strategic Plan	COMP-ACC	
COMP- Incompatibility with Faculty Culture	COMP-FAC	
COMP- Incompatibility with Campus Culture (dept thinking, not going away)	COMP-CAMP	
COMP- Faculty Buy-In	COMP-BUY	
Ease of Use	EASE	2, 3a
EASE- Easy to Use	EASE-EASY	
EASE- Streamlines Reporting	EASE-REP	
EASE- Other Problems	EASE-OTHER	
EASE- Too Much Work	EASE-WORK	
EASE- Access Limitations	EASE-ACCESS	
EASE- Difficult to Use (overwhelming)	EASE-LACK	
Image	IMAGE	3a, 4
IMAGE- Improve Reputation	IM-REP	
IMAGE- Marketing	IM-MRK	
IMAGE- Not Want to Look Bad	IM-NOTBAD	
IMAGE- Transparency (Information for Constituents)	IM-TR	
IMAGE- Communicate Quality	IM-QUAL	
IMAGE- Share Practices	IM-SHARE	
IMAGE- Forces Faculty to Change	IM-CHANGE	
IMAGE- Negative Impact	IM-NEG	

Appendix L

Diffusion of Assessment Survey Results

	Count	Valid Percent
What college are you in?		
Agricultural Sciences	25	10.5 %
Applied Human Sciences	37	15.5 %
Business	8	3.4 %
Engineering	16	6.7 %
Liberal Arts	62	26.1 %
Natural Sciences	35	14.7 %
Veterinary Medicine & Biomedical Sciences	35	14.7 %
Natural Resources	20	8.4 %
(Other)	1	
Total Responses	**239**	**100.00 %**
What department/office are you in?		
Agricultural & Resource Economics	5	2.2 %
Animal Sciences	5	2.2 %
Bioagricultural Sciences & Pest Management	6	2.6 %
Horticulture & Landscape Architecture	5	2.2 %
Soil & Crop Sciences	3	1.3 %
Construction Management	5	2.2 %
Design & Merchandising	2	0.9 %
Food Science & Human Nutrition	2	0.9 %
Health & Exercise Science	5	2.2 %
Human Development & Family Studies	3	1.3 %
Occupational Therapy	2	0.9 %
School of Education	14	6.1 %
School of Social Work	4	1.7 %
Accounting	2	0.9 %
Computer Information Systems	1	0.4 %
Finance & Real Estate	1	0.4 %
Management	3	1.3 %
Marketing	1	0.4 %
Atmospheric Science	2	0.9 %
Chemical & Biological Engineering	1	0.4 %
Civil & Environmental Engineering	8	3.5 %
Electrical & Computer Engineering	3	1.3 %
Mechanical Engineering	2	0.9 %
Anthropology	5	2.2 %
Art	9	3.9 %
Economics	2	0.9 %
English	7	3.1 %
Foreign Languages & Literatures	3	1.3 %
History	6	2.6 %
Journalism & Tech Communication	5	2.2 %
Music, Theatre & Dance	9	3.9 %
Philosophy	2	0.9 %
Political Science	4	1.7 %

	Count	Valid Percent
What department/office are you in?		
Sociology	4	1.7 %
Speech Communication	5	2.2 %
Biochemistry & Molecular Biology	6	2.6%
Biology	7	3.1 %
Chemistry	2	0.9 %
Computer Science	6	2.6 %
Mathematics	3	1.3 %
Physics	3	1.3 %
Psychology	5	2.2 %
Statistics	2	0.9 %
Biomedical Sciences	5	2.2 %
Clinical Sciences	9	3.9 %
Microbiology, Immunology & Pathology	13	5.7 %
Fish, Wildlife & Conservation Biology	9	3.9 %
Forest, Rangeland & Watershed Stewardship	7	3.1 %
Geosciences	2	0.9 %
Natural Resource Recreation & Tourism	2	0.9 %
Center for Applied Studies in American Ethnicity	1	0.4 %
Center for Science, Mathematics & Technology	1	0.4 %
(Other)	10	
Total Responses	**239**	**100.00 %**

	Count	Valid Percent
Are you assigned to enter assessment plans/results into REAL?		
yes	53	22.3 %
no	185	77.7 %
(Not Answered)	1	
Total Responses	**239**	**100.00 %**

		Count	Valid Percent
1. What is your gender?			
Male		167	70.2 %
Female		71	29.8 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
2. How long have you been an employee at MSU?			
1-5 years		62	26.1 %
6-10 years		53	22.3 %
11-15 years		30	12.6 %
16-20 years		27	11.3 %
More than 20 years		66	27.7 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
3. What is your academic rank?			
Assistant professor		64	26.9 %
Associate professor		59	24.8 %
Professor		100	42.0 %
Other		15	6.3 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
4. Have you served on an assessment committee, either for the campus, your College or your department?			
Yes		121	50.8 %
No		117	49.2 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**

		Count	Valid Percent
5. Have you heard about REAL?			
yes		143	60.1 %
no		95	39.9 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
6. Have you gone online and viewed REAL?			
yes		84	35.3 %
no		154	64.7 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
7. Have you seen paper plans or reports from REAL?			
yes		83	34.9 %
no		155	65.1 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
8. Have you entered information/data into REAL ?			
Yes		61	25.6 %
No		177	74.4 %
(Not Answered)		1	
	Total Responses	**239**	**100.00 %**
9. How have you used REAL? (check all that apply)			
for classroom teaching		7	2.0%
for department planning		30	8.3%
for curriculum development		19	5.3%
for program assessment		72	20.0%
for program review		52	14.4%
for accreditation		24	6.7%
for research projects about student learning		3	1.0%
not at all		153	42.0%
(Not Answered)		1	
	Total Responses	**362**	**100.00 %**

		Count	Valid Percent
10. Estimate how often you have used REAL.			
never		151	63.7 %
1-5 times		40	16.9 %
6-10 times		13	5.5 %
7-11 times		7	3.0 %
12-16 times		5	2.1 %
17-20 times		5	2.1 %
more than 20 times		16	6.8 %
(Not Answered)		2	
	Total Responses	**239**	**100.00 %**
11. Has someone showed you how to use REAL?			
yes		63	26.6 %
no		174	73.4 %
(Not Answered)		2	
	Total Responses	**239**	**100.00 %**
12. Was training in REAL offered to you?			
yes		60	25.3 %
no		177	74.7 %
(Not Answered)		2	
	Total Responses	**239**	**100.00 %**
13. Did you participate in REAL training?			
yes		42	17.7 %
no		195	82.3 %
(Not Answered)		2	
	Total Responses	**239**	**100.00 %**
14. Were you given an incentive or reward for using REAL?			
yes		2	0.8 %
no		235	99.2 %
(Not Answered)		2	
	Total Responses	**239**	**100.00 %**

	Count	Valid Percent
14a. What incentive/reward did you receive? (choose all that apply)		
(Not Answered)	237	99.2 %
Opportunity to attend workshop/conference	1	0.4 %
Release time	1	0.4 %
Public recognition	0	
Increase in salary	0	
Faculty award	0	
Total Responses	**239**	**100.00 %**
15. What do you think is the most important use of REAL? (choose one)		
for classroom teaching	12	5.1 %
for department planning	18	7.6 %
for curriculum development	10	4.2 %
for program review	51	21.6 %
for accreditation	23	9.7 %
for research projects about student learning	1	0.4 %
documentation for promotion and tenure	3	1.3 %
Other (mostly “do not know”)	118	50.0 %
(Not Answered)	3	
Total Responses	**239**	**100.00 %**
16. Has REAL helped you or your department improve teaching or student learning?		
yes	34	14.4 %
no	202	85.6 %
(Not Answered)	3	
Total Responses	**239**	**100.00 %**
16a. How has REAL improved teaching or learning? (choose all that apply)		
improved teaching methods	6	7.2 %
improved course content	17	20.5 %
improved student evaluation methods	14	17.0 %
improved student learning in courses	10	12.0 %
Improved department goal setting	20	24.1 %
improved department student learning results	10	12.0 %
improved the facility	3	3.6 %
other	3	3.6 %
Total Responses	**83**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

Voluntariness

17. My chair and/or Dean does NOT require me to use REAL.
Mean =4.92 (2.47)

strongly agree	79	44.4
agree	32	18.0 %
somewhat agree	3	1.7%
neutral	10	5.6 %
somewhat disagree	4	2.2 %
disagree	13	7.3 %
strongly disagree	37	20.8 %
do not know	57	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

18. Although it might be useful, using REAL is certainly NOT compulsory in my work.
Mean= 5.14 (2.32)

strongly agree	79	44.9 %
agree	37	21.0 %
somewhat agree	4	2.3 %
neutral	12	6.8 %
somewhat disagree	3	1.7 %
disagree	12	6.8 %
strongly disagree	29	16.5 %
do not know	59	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Relative Advantage

19. Using REAL improves (would improve) the quality of my work.
Mean= 3.33 (1.79)

strongly agree	1	.9 %
agree	11	9.9 %
somewhat agree	24	21.6 %
neutral	24	21.6 %
somewhat disagree	8	7.2 %
disagree	14	12.6 %
strongly disagree	29	26.1 %
do not know	124	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

20. Using REAL makes (would make) it easier to do my work.
Mean= 2.82 (1.59)

agree	8	7.2 %
somewhat agree	5	4.5 %
neutral	33	29.7 %
somewhat disagree	13	11.7 %
disagree	17	15.3 %
strongly disagree	35	31.5 %
do not know	124	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

21. Using REAL improves (would improve) my work performance.
Mean= 3.03 (1.72)

agree	10	8.8 %
somewhat agree	15	13.3 %
neutral	29	25.7 %
somewhat disagree	7	6.2 %
disagree	18	15.9 %
strongly disagree	34	30.1 %
do not know	122	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

22. Using REAL enhances (would enhance) the effectiveness of my work.
Mean= 3.17 (1.73)

agree	11	9.8 %
somewhat agree	16	14.3 %
neutral	32	28.6 %
somewhat disagree		5.4 %
disagree	16	14.3 %
strongly disagree	31	27.7 %
do not know	123	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

23. Using REAL gives (would give) me greater control over my work.
Mean= 2.70 (1.54)

strongly agree	2	1.8 %
agree	3	2.7 %
somewhat agree	6	5.4 %
neutral	28	25.0 %
somewhat disagree	17	15.2 %
disagree	21	18.8 %
strongly disagree	35	31.3 %
do not know	123	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

24. Using REAL helps (would help) me plan and improve student learning.
Mean= 3.38 (1.83)

strongly agree	2	1.8 %
agree	11	9.8 %
somewhat agree	25	22.3 %
neutral	25	22.3 %
somewhat disagree	5	4.5 %
disagree	15	13.4 %
strongly disagree	29	25.9 %
do not know	123	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

25. Using REAL provides (would provide) me with new ideas for assessing and improving student learning. Mean= 3.60 (1.90)

strongly agree	4	3.6 %
agree	16	14.3 %
somewhat agree	23	20.5 %
neutral	22	19.6 %
somewhat disagree	8	7.1 %
disagree	13	11.6 %
strongly disagree	26	23.2 %
do not know	123	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

Compatibility

26. Using REAL is (would be) compatible with all aspects of my work.

Mean= 2.80 (1.70)

agree	10	9.3 %
somewhat agree	11	10.3 %
neutral	17	15.9 %
somewhat disagree	13	12.1 %
disagree	22	20.6 %
strongly disagree	34	31.8 %
do not know	128	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

27. I think using REAL fits (would fit) well with the way I like to work.

Mean= 2.98 (1.75)

agree	9	8.3 %
somewhat agree	15	13.9 %
neutral	26	24.1 %
somewhat disagree	10	9.3 %
disagree	11	10.2 %
strongly disagree	37	34.3 %
do not know	127	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

28. Using REAL fits (would fit) into my work style.

Mean= 2.92 (1.70)

strongly agree	1	.9 %
agree	6	5.5 %
somewhat agree	14	12.8 %
neutral	28	25.7 %
somewhat disagree	10	9.2 %
disagree	13	11.9 %
strongly disagree	37	33.9 %
do not know	126	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

Image

29. People at MSU who use REAL have more prestige than those who do not.
Mean= 1.97 (1.20)

strongly agree	1	.8 %
somewhat agree	3	2.4 %
neutral	15	12.2 %
somewhat disagree	8	6.5 %
disagree	40	32.5 %
strongly disagree	56	45.5 %
do not know	112	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

30. People at MSU who use REAL have a high profile.
Mean= 2.20 (1.36)

strongly agree	1	.8 %
somewhat agree	8	6.6 %
neutral	19	15.6 %
somewhat disagree	7	5.7 %
disagree	38	31.1 %
strongly disagree	49	40.2 %
do not know	113	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

31. Using REAL is a status symbol at MSU.
Mean= 1.76 (1.06)

strongly agree	1	.8 %
neutral	14	10.5 %
somewhat disagree	5	3.8 %
disagree	42	31.6 %
strongly disagree	71	53.4 %
do not know	102	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

Ease of Use

32. Using REAL is (would be) often frustrating.
Mean= 5.36 (1.45)
Mean + version =2.64 (1.45)

strongly agree	27	27.6 %
agree	24	24.5 %
somewhat agree	19	19.4 %
neutral	19	19.4 %
somewhat disagree	3	3.1 %
disagree	6	6.1 %
do not know	137	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

33. I believe that it is easy to get REAL to do what I want it to do.
Mean= 3.20 (1.60)

agree	9	9.2 %
somewhat agree	12	12.2 %
neutral	24	24.5 %
somewhat disagree	20	20.4 %
disagree	11	11.2 %
strongly disagree	22	22.4 %
do not know	137	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

34. Learning to use REAL is (would be) easy for me.
Mean= 4.01 (1.58)

strongly agree	4	4.0 %
agree	15	14.9 %
somewhat agree	21	20.8 %
neutral	26	25.7 %
somewhat disagree	17	16.8 %
disagree	9	8.9 %
strongly disagree	9	8.9 %
do not know	134	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

35. Overall, I believe that REAL is easy to use.
Mean= 3.32 (1.74)

strongly agree	1	1.0 %
agree	12	12.4 %
somewhat agree	12	12.4 %
neutral	24	24.7 %
somewhat disagree	15	15.5 %
disagree	9	9.3 %
strongly disagree	24	24.7 %
do not know	138	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Result Demonstrability

36. I would have no difficulty telling others about the results of using REAL.
Mean= 3.83 (1.96)

strongly agree	11	8.3 %
agree	22	16.7 %
somewhat agree	19	14.4 %
neutral	29	22.0 %
somewhat disagree	7	5. 3 %
disagree	20	15.2 %
strongly disagree	24	18.2 %
do not know	103	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

37. I believe I could communicate to others the consequences of using REAL.
Mean= 3.92 (1.98)

strongly agree	12	9.2 %
agree	20	15.4 %
somewhat agree	28	21.5 %
neutral	22	16.9 %
somewhat disagree	5	3.8 %
disagree	20	15.4 %
strongly disagree	23	17.7 %
do not know	105	
(Not Answered)	4	
Total Responses	**239**	**100.00%**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

38. The results of using REAL are apparent to me.
Mean=3.12 (1.97)

strongly agree	8	6.5 %
agree	8	6.5 %
somewhat agree	20	16.3 %
neutral	18	14.6 %
somewhat disagree	9	7.3 %
disagree	21	17.1 %
strongly disagree	39	31.7 %
do not know	112	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

39. I would have difficulty explaining why using REAL may or may not be beneficial.
Mean= 4.13 (2.11)
+ version= 2.64 (1.45)

strongly agree	28	20.6 %
agree	16	11.8 %
somewhat agree	17	12.5 %
neutral	18	13.2 %
somewhat disagree	19	14.0 %
disagree	18	13.2 %
strongly disagree	20	14.7 %
do not know	99	
(Not Answered)	4	
Total Responses	**239**	**100.00%**

Visibility

40. At MSU, one sees many people using REAL.
Mean= 2.14 (1.40)

strongly agree	1	.6 %
agree	5	3.2 %
somewhat agree	7	4.5 %
neutral	14	9.0 %
somewhat disagree	14	9.0 %
disagree	48	31.0 %
strongly disagree	66	42.6 %
do not know	80	
(Not Answered)	4	
Total Responses	**239**	**100.00%**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

41. REAL is not very visible at MSU.
Mean= 5.65 (1.50)
+ version= 2.34 (1.50)

strongly agree	62	36.5 %
agree	50	29.4 %
somewhat agree	25	14.7 %
neutral	16	9.4 %
somewhat disagree	6	3.5 %
disagree	9	5.3 %
strongly disagree	2	1.2 %
do not know	65	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Trialability

42. I know where I can go to satisfactorily try out various uses of REAL.
Mean= 2.70 (1.83)

strongly agree	7	4.3 %
agree	10	6.1 %
somewhat agree	18	11.0 %
neutral	14	8.5 %
somewhat disagree	16	9.8 %
disagree	41	25.0 %
strongly disagree	58	35.4 %
do not know	71	
(Not Answered)	4	
Total Responses	**239**	**100.00%**

43. Before deciding whether to use any REAL applications, I was able (would be able) to properly try them out.
Mean= 3.58 (1.83)

strongly agree	2	1.9 %
agree	16	15.1 %
somewhat agree	22	20.8 %
neutral	20	18.9 %
somewhat disagree	10	9.4 %
disagree	14	13.2 %
strongly disagree	22	20.8 %
do not know	129	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**

Key: SA=7, A=6, SWA=5, N=4, SWD=3, D=2, SD=1	Count	Valid Percent

44. I was (am) permitted to use REAL on a trial basis long enough to see what it could/can do.
Mean= 3.21 (1.77)

strongly agree	2	2.1 %
agree	10	10.6 %
somewhat agree	15	16.0 %
neutral	14	14.9 %
somewhat disagree	11	11.7 %
disagree	22	23.4 %
strongly disagree	20	21.3 %
do not know	141	
(Not Answered)	4	
Total Responses	**239**	**100.00 %**